

A STUDY ON **“MANJAL KAMALAI”**

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INTRODUCTION

Siddha dates back to 2000 B.C originated in southern India. The word siddha is derived from “siddhi” meaning an object to be attained “perfection” (or) heavenly bliss”.

The principles of siddha system it is a holistic approach. This system is treated should be oriented not merely to disease but should also take into account the pt his Environment, sex, age, Habits, mental frame habit, diet and physical condition.

Medicine has drawn richly from traditional cultures. The traditional tamil system evolved with the development of mankind that are truly Indian in origin and the development are Siddha and Ayurvedha.

Siddha system is practiced in the tamil speaking areas of south India.

Siddha systems approaches and analyses the ailments on the basis of the “Tiridhosa theory of disease” The dhosas or humours and vatham, pitham, kabam.

The three humours are derived from “pancha bootha” by the combination of five bhoothas.

Siddha system is based upon “Food is medicine” medicine is food” and later on pancha boothic and Tridosha theory.

The Dosha’s or humours are vatha (wind) pitha (gall) and Kapha (mucus).

When these in perfect balance and harmony a person is said to be healthy.

Siddhar’s humoural pathology explains that all diseases are caused by the mixture of the three cardinal humours, vil, vadha, pitha, kabam.

The above three humours are present in the rat win 1: 1/2 : 1/4. It will disturb the normal condition and will result in disease.

Thiruvalluvar also mentioned the above fact in his thirukkural.

“மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளி முதலா எண்ணிய மூன்று”.

The three humours are nourished by their respective elements present in food.

“வாத்மாய் படைத்து பித்த வன்னியாய் காத்து
சேத்தும சீதமாய் துடைத்து.”

They are the fundamental principles of creation preservation and destructive in the universe. The creative force in the physical body is known as vatham, the protective force is pitham and the destructive one is kabam. The tridosha theory is important point to be considered in health and disease.

This tridhosha is causation of signs and symptoms is a great boom for Indian physicians for diagnosis and prognosis of disease.

Siddha's narrated in detail the classification Aetiology, Pathology, Pathogenesis, complications treatment and diet to be followed.

Their aim is to have disease free physical and psychological make up to prevent illness and to bestow Immortality.

This illustrated in the verse.

One that cures physical ailment is medicine

One that cures psychological ailment is medicine

One that prevents ailment is medicine

One that bestow immortality is medicine

-Thirumantiram.

The clinical methods of siddha system through which the correct diagnosis is made out are called as “ENVAGAI THERVUGAL” they are

“நாடிப் பரிசம் நா நிறம் மொழி விழி
மலம் மூத்திரமானவை மருத்துவராயுதம்.”

“Children's health” Tomorrow's wealth”

So the central and state government is giving importance to children for this growth and development and gives interest to preventive measures against disease.

To reduce the child mortality rate the concept of Siddha medicine will be very much developed to the concept of modern medicine for this aspect the author select the disease. MANJAL KAMALAI from Kuzhandhai Maruthuvam.

AIM AND OBJECTIVES

“Several tones of theory cannot equal a one of practice”

- Swami Sivanandha.

I have chosen the disease **MANJAL KAMALAI** for study because there is a unshakable. Truth among the people that this disease is curable only in our traditional medicine of Siddha system of medicine from 2000 BC to 2009.

India is a tropical country having larger population in the world. Where people of different socio – economic status and are found. The down trodden poor children who live in density populated areas with poor sanitary facilities lack of personal and environmental hygiene are the common victims of this disease.

If proper attention has not been given it may even leads to fatal condition. So immediate care should be taken as soon as the act break of this disease is noticed in children.

I have selected the disease **MANJAL KAMALAI** it is compared with modern medicine and its prognosis with our trial medicine

The medicine is easily prepared from our homes. Cheep and best and also safe.

OBJECTIVES

1. To study the **MANJAL KAMALAI** its etiology symptomatology, pathogenesis, prognosis and prevention.
2. To know how the disease alters the normal conditions of mukkutram, poripulungal.
3. To study the relationship of age, sex, race environment, socio economic status and familial incidence of the disease.
4. To analyse the incidence of this disease among the children of age group 1-12 yrs.
5. to study my trial medicine its action biochemical and pharmacological laboratories.
6. To make awareness about the prevention of the disease.
7. To have clinical trial medicine is children.

As a Siddha pediatrician had an extra personal interest in the study of a new drug for this common pediatric disease.

மீசள் நோய்

வேறு பெயர்கள்

காமாலை
மீசுட் காமாலை
பித்த நோய்
காமலா
காமிலா என்பன

எதிலும் இச்சை இல்லாமல் இருப்பதால் காமாலை காமம் இல்லை
ஆசை இல்லை என்பதும் இவ்வாறு அழைக்கப்பட்டது.

1. உடல் முழுவதும் மீசள் நிறமாக தோற்றமளிப்பதால் மீசள் நோய் என்றும்
2. பித்தநீர் இரத்தத்தில் கலப்பதால் பித்தநோய் என்றும்

இயல் : சிறுநீர், கண், நா, உடல்யாவும் மீசள் நிறத்தைப் பெற்ற நோயாம்.

நோய் வரும் வழி :

“ஒளி உவர் கைப்பேரின் பித்துச் சீரும்”

என்பதற்கிணங்க அழல் குற்றத்தைப் பெருக்கக் கூடிய உப்பு கைப்பு, கார்ப்புச் சுவையுள்ள உணவுப் பொருட்களை மிகுதியாக உண்ணாதல், எண்ணெய், நெய், கொழுப்பு இவற்றை மிகுதியாக உண்ணாதல் தூய்மையற்ற நீரைப் பருகாதல், தூய்மையற்ற உணவை உண்ணாதல், மது வகைகளை அருந்துதல் ஆகிய காரணங்களால் நோய்க் கிருமிகள் பித்தப்பையைத் தாக்கி தாபிதமடையச் செய்து விடும்.

இயற்கையிலேயே நோய் எதிர்ப்புச் சக்தி இன்மை, இந்நோயை உண்டாக்கும் கிருமிகள் ஆகிய காரணத்தால் பித்தப்பை தாபிதமடைகிறது. மேலும் பித்தப்பையில் கட்டி, கல் இவற்றின் காரணமாக பித்தநாளம் அடைபடுவதாலும் இந்நோய் வருகிறது. மேலும் குருதியைக் கேடடையச் செய்யும் மருந்து வகைகளாலும், பரம்பரையாக வரும் இரத்த நோய்களாலும், நளிர் சுரத்தாலும். மேற்கூறிய காரணங்களால் பித்த நீர் தன் இயற்கை வழியில் செல்லாமல் குருதியில் கலந்து குருதியினைக் கேடடையச் செய்வதால் இந்நோய் வருகிறது.

முற்குறி :

“பருகவே உள்ள்கா லுள்ளி கைகள்
பகர்முகிகண் ணடம்புமிக வெலுப்பு காணு
கருகவே கால்கைக ளோம்ச்ச லாகுலு
கனமாக நடுக்கியே இளைப்புண் டாக்கு
சுருகவே மலந்தானும் வறண்டு கட்டுந்
தூயமுக மசீளிந் நிறம் தாகும்
வெருகவே வீக்கமாய்க் களைப்புண் டாகும்
மிகக்காது மந்தத்தலை கனப்புண் டாகும்”

- யுகிமுனி

என்பதற்கிணங்க மீசள் நோயில் உள்ளகால், கை, முகம், உடம்பு இவைகள் வெலுத்தல், கை, கால்கள் சோர்வடைதல், உடல் நடுக்கல், அடிக்கடி இளைப்பு, எருக்கட்டுப் பட்டுத் தீய்ந்து வெளியாதல், மிகத் தூக்கம் தலை கனத்தல், முதலிய குறிகுணங்களைக் காட்டி உடல் முதலியன மீசள் நிறமடையும், வீக்கம், களைப்பு, காது மந்தம் முதலியவைகளும் உண்டாகக் கூடுமென யுகிமுனி கூறியுள்ளார்.

Classifications (நோய் எண்)

According to Bala vagadam: Dr. Pon Gurusironmani

1. Oothu kamalai
2. Varal kamalai
3. Manjal kamalai

According to Yugi vaidha chinthamani

உரைக்கவே ஊதுகாமாலையோடு
உயர்ந்த வறட்காமாலை வாத காமாலை
புரைக்கவே பித்த காமாலையோடு
பேரான சிலேத்ம காமாலையாகும்
வரைக்கவே வாத சிலேத்ம காமாலை
வகையான பித்த சிலேத்ம காமாலை
துரைக்கவே தொந்த காமாலையோடு
சூட்சுமமா மத்சுட் காமாலையாமே.
மத்சுளழகு காமாலையோடு
மருவுகின்ற செக்கமலக் காமாலையாகும்
குத்சுவா] கும்ப காமாலையோடு
கொடிய குன்மக்காமாலை பதிமூன்றாகும்.

1. Vatha kamalai
2. Pitha kamalai
3. Kapha kamalai
4. Vatha kapha kamalai
5. Pitha kapha kamalai
6. Mukkutra kamalai
7. Manjal kamalai
8. Azhagu Kamalai
9. Sengamala kamalai
10. Kumba kamalai
11. Gunma kamalai
12. Oothu kamalai
13. Varal kamalai.

According to Agasthiyar 2000

Manjal Noi is classified into 8 kinds they are,

1. Vatha Kamalai
2. Pitha Kamalai
3. Silathuma kamalai
4. Pitha silathma kamalai
5. Vatha silathma Kamalai
6. Sannibatha kamalai
7. Pitha vatha kamalai
8. Sobai kamalai

The symptoms of each type, which are similar to the symptoms that are explained by Yugi vaidhya chinthamani.

According to vaidhya sara sangiragam

Kamalai is classified into 5 types.

1. Varal kamalai
2. Vatha kamalai
3. Pitha kamalai
4. Aiyya kamalai
5. Manjal kamalai

According to Dhanvanthri vaidhyam – by Dr. S. Venkatarajan.

Kamalai classified into 5 types they are,

- 1.Vatha kamalai.
- 2.Pitha kamalai
- 3.Silathma kamalai
- 4.Mukkuttru kamalai
- 5.Kumba kamalai

Manjal kamalai is not described in Dhanvanthri

According to Roga nirnaya saram (Roga nithanam) by Dr. Mahadeva pandithar.

Kamalai classified into 13 types, as described in Yugi Vaidhya Chinthamani.

Signs and symptoms of Manjal kamalai(குறிகுணம்)

According to Bala vagadam

கண்ணுடன் சிறுநீர் நாக்கு கணக்கவே மத்சுட் போலாம்
எண்ணிய கரிகள் வாந்தி யெடுத்திடு மயக்க முதல்
விண்ணமாய் மூக்கினீரும் வடித்திடும் வயிற்று னோயாம்
நன்னுமத்சுட் சட்காமாலை நாடிய குணிகள் தானே
குண்டியக் காமிருந்தால் குளுப்பை யாய் முகி கால் வீக்கும்
விண்டிட ரத்தம் வற்றும் வெதுப்புமேல் விலாவில் தோன்றும்
பாண்டியின் மலமுத்சுட் சிக்கிப் பசுமத்சுட் சிறுநீராகும்
கண்டியாய்க் கண்வெளுக்கு மத்சுட்காமாலையாமே.

1. Yellowish discolouration of the sclera, conjunctiva, tongue and urine.
2. Pyrexia
3. Vomiting
4. Lethargy
5. Anasarca
6. Rhinorrhoea
7. Abdominal pain
8. Dropsy
9. Anaemia
10. Constipation

The other types mentioned in Bala vadagam Oothu Kamalai

“ஊது காமாலைக் குணிகளோ யூதி முகமு] காலதைக்கும்
பாதி சாமம் பசியேடுக்கும் புசித்த வடனே மந்திக்கும்
சீதம் சிறுத்து வயிறுவிடும் சிந்தை மயக்க முண்டாகும்
காது மடைக்கு மிளைப்புண்டா] காமாலை யூதற் குணமிதுவே
காதுட னுடம்பும் கண்ணம் கனக்கவே வீ]கும் வற்றும்
போதவே நாவும் புண்ணாய்ப் பொருந்திய சுரமுண்டாகும்
வேதுகை காலும் சோர்ந்து வெளுத்திடு மன்னந் தன்னை
ஊதுகாமாலை யென்றே யுரைத்தனர் முனிவர் தானே”.

Oedema of the face and lower extremities

1. Excessive appetite, flatulence
2. Dysentery
3. Altered sensorium
4. Swelling all over the body (Anasarca)
5. Sore tongue
6. Pryexia
7. Malaise

Varal Kamalai

“கண்பச்சென் றேயிருக்கும் காலோய்த் துடம்புலரும்
தண்ணீர்க்கு மெத்தத் தவிக்கும் - பெண்ணே
இருட் பிழம்பைப் போலு மிளவலுக்குத் தான் சூழ்
வரட்காமாலைக் குணத்தின் வாறு”.

1. Dark yellow coloration of the eye
2. Lassitude
3. Excessive thirst
4. Dryness of the body.

According to Yogi vaidhya chinthamani Prodromal signs and symptoms

“பருகவே உள்ள]காலுள்ள]கைகள்
பகர் முகம் கண்ணாடம்பு மிக வெளுப்பு காணம்
கருகவே கால் கைக ளோய்ச்சலாகும்
கனமாக நக்கியே இளைப்புண்டாக்கு
கருகவே மலந்தானும் வறண்டு கட்டுந்
தூயமுக ம]சளி] நிறமாதாகும்
வெருகவே வீக்கமாய்க் களைப்புண்டாகும்
மிக காது மந்தந் தலை களப்புண்டாகும்.”

1. Pallor of the palm, sole, face and body
2. Lassitude
3. Shivering
4. Dyspnoea

5. Constipation
6. Yellow coloration of the face
7. Oedema
8. Fatiguability
9. Generalised tiredness
10. Heaviness of the head.

Signs and symptoms

“விவரமாய் மூத்திரந்தான் மீசுளாகும்
வீக்குமே சீரமெஞ்ஞு மெலிவுண்டாகும்
முபரமாய் முகி கால்கள் கையுண்ணாக்கு
மொழிமீசுள் நிறமாகும் முகமினுக்கும்
அபரமாயன்னத்தை யிறி கொட்டாது
அழுகையாய் மனசலிக்கும் மூச்சுண்டாகுந்
தபரமாய்த் தாது நட்ட மலமும் பந்த
சார்ந்த மீசுட் காமாலைத் தன்பேராமே.”

- யூகி முனி.

1. Yellow discoloration of urine
2. Oedema
3. Emaciation
4. Yellowish discoloration of conjunctiva, mucosa under the tongue and face
5. Glistening of face
6. Anorexia
7. Acute mental depression.
8. Dyspnoea
9. Loss of libido
10. Constipation

According to Agasthiyar – 2000

“வீழுமே நீரும் மீசுளுமாய் வீக்குமுகமு காலுடனே
அழுமே கண்ணம் மீசுளிக்கும் அசன மிறிக வொட்டாது
முழுமேனி காய் மீசுளிக்கும் முகமும் வேர்க்கும் காலோயும்
தொழுமே சிவனைப் பலகாலும் சொன்னாமிதனைச் சொன்னாமே
முகமும் வீகி கண் வெளுத்து மூச்சு நடக்கில் முட்டதுவாய்
அகமுந்தடித்து நாவரண்டு அணுகுந் தாது கெட்டிருக்கும்
மிகவும் அசன செல்லாது மேனி வரண்டு வெளுப்பேறு
செகமே சொன்னோ காமாலை செய்யு குணிகளிலை
கண்டாய்”.

1. Yellow coloured urine
2. Oedema of face and lower extremities
3. Yellowish discolouration of the conjunctiva
4. Loss of appetite
5. Sweating over the face

- 6.Pallor of the eyes
- 7.Dyspnoea on exertion
- 8.Dryness of the tongue and body
9. Pallor of the body.

According to Athma rakshamirtha vaidhya sara sangiragam:

-by Kanthaswami mudhaliyar.

“சொன்னார் முனிவர் காமாலை சூட்சு சூட்சந்தானறிந்து
பின்னும் வியாதி சாத்தியமும் பேராக்குறிப்புந் தனையறிதல்
குன்னும் நேத்திரப் பரிட்சைகளும் கூறும் பாகந்தனைப்

புகழ்ந்து

அன்னே தாமுந் தானறிய அறைந்தார் வயித்திய சாரமிதே.
தேகத்தில் இரத்தம் கெட்டு தசை வெளுத்து ஈரல் கெட்டு
பலவாறான ரோகங்களை விளைவிக்குதலாம்”.

That is oedema all over the body dryness of the tongue, diarrhoea, thirst, yellow coloured urine etc.

According to Siddha maruthuvam – by Dr. Kuppuswamy mudaliyar and Noi naadal part II – By Dr.Shanmugavelu:

Both were explained kamalai as in Yugi chinthamani.

1. Yellowish discolouration of urine.
2. Oedema of the body.
3. Yellowish discolouration of the face, tongue, conjunctiva, and extremities
4. Shining of the face
5. Anorexia
6. Loss of libido
7. Mental apathy
8. Constipation
9. Turmeric Odour in the breathing,

In Anubava vaidhya deva ragasiyam part IV – by Seetha ram prasath

He described Kamalai as in Jeeva Rakshamirtham

- 1.Yellowish discolouration of the face,tongue and extremities
2. Shining of the face
3. Oedema.
4. Aversion to food
5. Lethargy
6. Loss of libido
- 7.Constipation

Pathogenesis(நோய் உருவாகும் விதம்):

கூறிடவே பித்தமது சீறிற்றானாற்
கொடுகாந்த லுடல் வறட்சி நடுக்கமுண்டாம்
மீறிடவே வதோசியந்தானா வறட்சி
மேலான சோபமது விக்கல் மூர்ச்சை

தூறிடவே கிறுகிறுப்புக் காதடைப்புத்
 தொந்தமா] கசப்புடனே மண்டைக்குத்து
 மாறிடவே நேசெறிவு அக்னி மந்தம்
 மகத்தான குளிர்சுரமும் காய்தலாமே
 ஆமேதான் அஸ்திரம் பாண்டு சோகை
 தழலான விடச்சுரமும் பிரமேகந்தான்
 போமே தான் காமாலை பித்த வெட்கை
 பொல்லாத பாண்டுடனே சிவந்த நீராம்
 தேமேதான் சிவப்பு வாயு மதளாயும்
 சிறுசிறுத் திருண்டு கருகுழி விழுந்து
 நாமேதான் சொன்னோமே பித்தக்கூறு
 நவின்றிடார் வாசமுனி நவின்றிட்டாரே”.

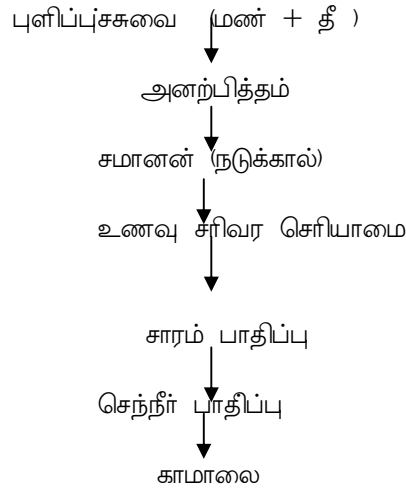
உடலில் அழலின் இருப்பிடம், தோல், கண், சிறுநீர், மலம், இரைப்பை, செந்நீர், உமிழ் நீர், சாரம், முதலியன தீ குற்றத்தினால் குருதியின் நிறம், வன்மை குறைந்து, உடலில் வெப்பம் மிகுந்து தோல், கண், சிறுநீர், இவை யாவும் மதளித்து காணும்.

பித்தத்தை மிகுதியாக்கும் சுவைகள்

புளிப்பு = மண் + தீ
 உப்பு = நீர் + தீ
 கார்ப்பு = வளி + தீ

இச்சுவைகள் அதிகமாய் புசிக்க பித்தம் அதிகரித்து காமாலை குறிகுணங்கள் தோன்றும்.

புளிப்பு சுவை அதிகரிக்க அதிலுள்ள தீ பூதக் கூறுபாடு அதிகரிக்கும், அதனால் அனற்பித்தம் பாதிப்படைந்து, சமானனை கேடையச் செய்கிறது.



உப்பு சுவை (நீர் + தீ) மிகுதியாகும் போது, உணவு உண்ண விருப்பமின்மை, மந்தம் முதலியன உண்டாகும்.

கார்ப்பு சுவை (வளி + தீ) மிகுதியாகும் போது, வாய் குமட்டல் வாய் நீர் பெருகல், உணவு செரியாமை, மலக்கட்டு முதலியன உண்டாகும்.

Mukkuttra verubadugal (முக்குற்ற வேறுபாடுகள்)

Taking of Pitha porulgal in excessively which are having the teste of soure, salt and pungent, occupation wandering in the hot sun, sleeplessness during night etc. these activities vitiating the Pitham, then kabam is also deranged then these two thathus affects viyanan. It also affects blood. Liver, bile and produce jaundice.

Diagnosis (பிணியறி முறைமை)

Piniyarimuraimai means method to find out the disease
this is based upon three main principles and Envagai thervugal

The three main principle are

- 1.Poriyal arithal
- 2.Pulanal arithal
- 3.Vinathal.

Pori-five organs of perception. They are skin, tongue, eyes, nose and ears
Pulan – functions of five senses, they are touch, taste, sight, smell,
and sound.

Examination of the pori and pulan of the patient by pori and pulan of the physician.

Vinathal – asking question concerned with the disease to the patient or asking to his parents or relatives.

Ennvagai thervugal

“நாடிப் பரிசம் நாநிறம் மொழி விழி
மலம் மூத்திரமிவை மருத்துவராயுதம்”

“மெய்க்குறி நிறந்தொளி விழி நாவிருமலம் கைக்குறி”

-நோய்நாடல் பாகம் - 1

1. Naadi
2. Sparism
3. Naa
4. Mozhi
5. Vizhi
6. Malam
7. Moothiram

1. Naadi

Naadi is defined as the Uyirhathukkal which are responsible for the existence of life in the physical body. It is mentioned in Noi Nadal Part-I as follows,

“உடலில் உயிர் தரித்திருப்பதற்கு காரணமான சக்தி எதுவோ அதுவே நாடி அல்லது தாது ஆகும்.”

So Naadi is the vital force of life. By means of feeling the beating of radial artery with the tip of the three fingers that is index, middle and ring finger at the lower end of the radius.

This Naadi denotes the pulse reading of normal vali, Azhal, Aiyyam and various abnormal condition.

Siddhars laid great emphasis on the study of Naddi for diagnosis, Prognosis and assessing the effect of treatment.

Naddi is classified into five kinds as follows:

- 1.Vatha Naadi
- 2.Pitha Naadi
- 3.Kapha Naadi
- 4.Pootha Naadi
- 5.Guru Naadi

In normal practice Vatha Naadi, Pitha Naadi and Kaba Naadi can be observed. The proportion of Vatha,Pitha,Kaba Naadi are 1: ½: ¼. Pootha Naadi and Guru Naadi are not generally observed in practice, since it cannot be learn without the help of Yogi, Asan or Guru.

The characters of Naadi are elaborately explained in our Siddha literature like “Pithinen Siddar Naadi”.

Each Naadi has its own origin, region, functions, movements and Mathirai (Proportion)

Index finger should be used to feel Vatha Naadi.

Middle finger should be used to feel Pitha Naadi.

Ring finger should be used to feel kaba Naadi.

In Manjal Kamalai the Pitha and kapha Naadi is mostly affected. Hence the Naadi in this disease is Pitha Kabam.

பித்த கப தொந்த நாடி குறிகுணம்

“பண்பான பித்தத்தில் சேத்தும நாடி

- சதக நாடி

கபநாடி மிகுதியால் வரும் நோய்

“தானமுள்ள சேத்துமந் தானிளகில்

- சதக நாடி

ஐயபித்த தொந்த நாடி குறிகுணம்

“இடமான சேத்துமத்தில் பித்த நாடி

- சதக நாடி

“பித்தரோசி பெருமுடல் சூடாகும்

நித்தமாழகம் நேர்வழி நாடிபல்

முத்தநீரு முயன்ற சிவப்பாகும்

சுத்த மச்சையத் தோன்றக் கண்டிடே”

- கலி விருத்தம்.

2.Sparisam

Sparisam is a method of palpation and percussion to know the condition of the body like warnty,fever,chillness,sweating, numbness,paresthesia,dryness of the body, erosion patches, ulcers, oedema, emaciation, swelling, obesity, enlargement of spleen and liver etc.

3.Naa (tongue)

This is the method of Inspection of the tongue mainly gums, teeth, lips, palate etc. To find out the colour changes according to Vatha, pitha, Kapha, and Mukkuttra disease, glossy tongue, coated tongue, flushing, Yellowish discolouration, pallor, fissures, Neoplastic changes and deviation of the tongue etc.

In Jaundice Yellow-coated tongue denotes the anorexia, bitter taste, excessive salivation with vomiting.

4.Niram(colour)

Diagnosis made with help of colour of the body such as pallor, yellow, cyanosis, Vatha, Pitha, Kapha, Thontha and Mukkuttra colour etc, In Jaundice skin and sweating is yellow in colour.

5.Mozhi

This is very useful to diagnose a disease with the help of speech and pitch of the tone, In Jaundice speech is not affected.

6. Vizhi

This method is useful to diagnose a disease, by examine the eye such as the colour of the eye, lacrimation, drooping of eye lids and haemorrhage etc.

In Jaundice the sclera, conjunctiva become yellow in colour.

7.Malam

In Vatha type, malam is hard, dry, scanty and black in pitha type the stools is loose(semisolid) moderate in quantity yellowish red in colour with fermenting odour, in kapha type the stools are white or clay coloured considerably large in quantity containing lot of mucous and frothy bubbles.

In Thontha type the malam may possess some of the combined features of two dhoshas.

In Thiridosha of sannibatha Kamalai, the malam may possess some of the features of all three doshas described above.

“மல மூத்திரக் குறி செப்பிடின் மலைமேற்பதி விளக்காம்
மையற்கொரு கணையாகிய மௌவற் கிணையாமே
மலமானது புயலா மேனிற் மன்னிற் பெறுசுரமே
மலரு] கவிரானால் தமைச்சன் பெறுசுரமாமே.
மகவான் கரியானாலது மறவன் சுரமாமே
மட்சுட்கிணையானது மண்ணைத் தொடுகபமே.”

-தேரன் வைத்திய மகா கரிசல்.

8.Moothiram(urine)

This investigation is more useful to diagnose the disease with the help of colour, smell, abnormal constituents, froth, excessive or scanty urination, specific gravity, mixing of blood, pus, deposits, sugar, albumin etc.

நீர்க்குறிச் சிறப்பு

“தர்க்க சாத்திரிகளானோர்
தகளிற் றேர்ந்து நாடி
நாடி வார்க்கமாம் நாடி தன்னில்
வருவது மயக்க மென்றே
உற்றநீர் பரிட்சையாயந்தே
யுரைத்தனரிதற்கு நேராய்
மற்றொரு விதி நூலில்லை
மருத்துவக்கலை வல்லோர்க்கே.”
சித்த மருத்துவாசிரியர் சுருக்கம்

பொருள்

மருத்துவ கலை வல்லவர்க்கு நோயை கணிப்பதற்கு நீர்குறியைக் காட்டிலும் சிறந்தது வேறில்லை.

நிறக்குறி நெய்க்குறி நிச்சயத்திற்குரிய நீர் இலக்கணம்:

“அருந்துமாறிரதமும் அவிரோதமாய்
அஃகல் அலர்தல் அகாலவூன் தவிர்ந்தழற்
குற்றளவருத்தி உறுகி வைகறை
ஆடிக்கலசத் தாவியே காது பெய்
தொரு முகூர்த்தக் கலைக்குட்படு நீரின்
நிறக்குறி நெய்க்குறி நிரூபித்தல் கடனே.”

என்பதினால், உண்ணுகின்ற அறுசுவைப் பொருளடகளும் ஒன்றுக்கொன்று வேற்றுமையமையாமலும், பசிக்குத் தக்கபடி குறைத்தல், அதிகரித்தல், காலந்தப்பதல், முதலிய குற்றுகள் உண்டாகாவண்ணம் புசித்து உறுகி. விடியற் காலத்தில் படிக பாத்திரத்தில் நீரை ஆவிபோகாதபடி பெய்த 3 3/4 நாழிகைக்குள் அதன் நிறக்குறியையும்,

அதில் எண்ணெய் விட்டுப் பார்த்து, காணப்படுகின்ற குறியையும் கவனித்து, பிணிகளின் தீரும், தீராத குறிகளை மெய்ப்பித்தல் முறையாம்.

காமாலை நோயைத் தரும் நீர்நிறம்

“வான்மீக மெழிற்குண் மைக்குண முறினது
தூன் காமாலை நோய் தரும் தின்றேனில்
பித்த நோயேனும் பிறக்கப்பணிக்குமே”

குக்கும்பூ நிறத்துள் சுருமை நிறம் தோன்றுமானால் அந்த நீர் காமாலை நோயையேனும், பித்த நோயையேனும் உண்டாக்கும்.

பித்த காமாலை நிறம்

“மந்திரி நிறமாய் வரப்படு நீரும்
உந்திய எருவையை ஒத்துரு நீரும்
பித்த காமாலைகளால் பிறந்தனவெனச்
சித்தய வித்தியாதரமது செப்புமே”.

என்பதினால் மீசள் நிறமாய் இழிகின்ற நீரும் தள்ளப்பட்ட உதிரத்தை ஒத்து இறகுகின்ற நீரும் பித்த காமாலை ரோகிகளால் பிறந்தன வென்றும் சித்த வித்தியாதரம் என்னும் நூல் செப்பும்.

வாத, பித்த காமாலை நீர்கள்
“உடலுறு பிணியைக் காண
வுண்மை வாகட நூல் சொல்லும்
படரு மூத்திரக் குறிப்பைப்
பார்க்குதால் வாதம் வெள்ளை
திடமுறு பித்தசற்று
சிவப்பு மீசள் போல் காணும்
புடைமிகச் சிவப்பு மீசள்
போன்றிடிற் காமாலையாமே”

என்பதால் உடம்பிலுண்டாகியிருக்கும் பிணிகளை அறிவதற்கு உண்மையான மருத்துவநூல் சொல்லும் குறிகளில் ஒன்றாக இருக்கும் மூத்திரக் குறியை ஆராயின். அது வெள்ளை நிறமாயின் வாத நோய் என்றும் சிவந்த மீசள் நிறமாயின் பித்தநோய் என்றும் மிக்க செம்மீசள் நிறமாயின் காமாலை நோய் என்றும் அறியலாம்.

ஈரல் சுரம் காட்டும் நீர்:

“அப்பு நீர் கலிகன் கொசுமாகவே சுறுக்குமாகில்
வெப்ப தீர்த்தாவி செதுப்பிய சுரமுண்டாமே.”

நீரானது கலிக சிறிது சுறுத்திருக்குமாயின் வெப்பமானது ஈரலைத் தாக்கியதால் உண்டான காய்ச்சல் என்று அறியலாம்.

பித்த சுபாவக் கெடுதி நீர் மணம்
“கருமான் மணமே கமழுமென்றாலது
குரவன் சுபாவ குண்கெடு நீரே”.

கருப்பு நிற மானிடத்தில் உண்டாகும் மணம் வீசுமானால் அது பித்தத்தின் இயற்கைக் குண விகற்பத்தினால் உண்டான நீராகும்.

“எண்ணெய் விட்டுப் பார்க்கும் நீரின் விதி
நிறக்குறிக் குரைத்த நிருமாண நீரில்
சிறக்க வெண்ணெய்யோர் சிறுதுளி நடுவிடுத்
தென்றுறத் திறந்தொலி யோகாதமைத்ததி
னின்றதிவலை போம் நெறிவிழியறிவும்
சென்றது புகலுச் செய்தியை யுணரே”

பொருள்:

நீர்நிறக்குறியால் நோயைக் கண்டுபிடித்தற் பொருட்டுச் சொல்லியிருக்கின்ற விதி பொருந்திய சிறுநீரில் ஒரு சிறிய துளி எண்ணெய்யை நடுவில் கையசைவினால் எண்ணெய்த்துளி சிதறாமல் விட்டு வெயிலானது அந்நீரில் படும்படி திறந்து காற்றானது அதில் வீசி அந்த எண்ணெய்த்துளி ஆடாதபடி வைத்து அச்சிறுநீரில் விடப்பட்டிருக்கின்ற எண்ணெய்த் துளியானது செல்லுகின்ற வழியில் கண்ணறிவையும், உயிரறிவையும் செலுத்தி, அத்துளி தெரிவிக்கும் நோய் விளக்கத்தை அறிய வேண்டும்.

பித்த நீர் நெய்க்குறி:

“ஆழிபோல் பரவின் அஃதே பித்தம்”

நீரில் விடும் எண்ணெய்த்துளி மோதிரம் போல் பரவினால் அந்நீர் பித்தநோயை காட்டும்.

பித்த கப நீர் நெய்க்குறி:

“ஆழியில் முத்தும்”

எண்ணெய்த்துளி சிறுநீரில் மோதிரத்தில் முத்துப் போல் நின்றால் அது பித்தகப நோய் அல்லது எண்ணெய்த்துளி பாதி மேலும் கீழுமானால் அதுவும் பித்தகப நோய் ஆகும்.

“மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளி முதலா எண்ணிய மூன்று”.

“வாதமாய் படைத்து பித்த வன்னியாய் காத்து
சேத்தும நீதமாய் துடைத்து.”

“நாடிப் பரிசம் நா நிறம் மொழி விழி
மலம் மூத்திரமானவை மருத்துவராயுதம்.”

In Manjal Kamalai, Pitham is mostly affected and then kabam is affected. Here it is essential to have a thorough knowledge of pitham since these are affected in this disease.

வளியின் வகைகள்::

10 வகைகள்:

1. பிராணன்:
 - மூச்சுவிடல், மூச்சுவாங்கல், புசிக்கும் உணவுகளைச் செரிக்கப் பண்ணும்
2. அபானன்:
 - கீழ்நோக்கி மலத்தைத் தள்ளும்
3. வியானன்:
 - உடலின் அசையும் பொருள், அசையாப் பொருள் இரண்டிலிருந்து உறுப்புகளை நீட்டவும், மடக்கவும் செய்யும்.
4. உதானன்:
 - உணவின் சாரத்தை அங்காங்கே நிறுத்தும் அதை வெளிப்படுத்தியும் கலக்கியும் வருதல் செய்யும்.
5. சமானன்:
 - நூறுசுவைகளையும், தண்ணீர், அன்னம் சமப்படுத்தி சேரும்படி செய்யும்.
6. நாகன்:
 - கண்களைத் திறக்கும்படிச் செய்யும். கண்களை இமைக்கும்படிச் செய்யும்.
7. கூர்மன்:

- கண்களைத் திறக்கவும், மூடவும் பண்ணும்
- 8. கிருகரன்:
 - தும்மலையும், இருமலையும் உண்டாக்கும்
- 9. தேவதத்தன்:
 - சண்டை கொள்ளல், தர்க்கம் பேசல், கோபம் ஆகியவற்றை உண்டாக்கும்.
- 10. தனஞ்செயன்
 - உடம்பு முழுமையும் வீங்கப் பண்ணும்.
 - இறந்துவிடின் காற்றெல்லாம் வெளிப்பட்ட பின்னர் மூன்றாவது நாளில் தலை வெடித்தபின் தான் போகும்.

பித்தம்:

பித்தத்தின் பிரிவுகள் : 5 வகை

1. அனற்பித்தம்:
 - உணவுப் பொருட்களைச் செரிக்கும்.
2. இரஞ்சக பித்தம்:
 - உணவிலிருந்து பிழிந்த சாறுக்குச் செந்நிறத்தைத் தரும்.
3. சாதகப் பித்தம்:
 - தமரகத்தின் தொழிலைச் செய்து முடிக்கும்
4. ஆலோசக பித்தம்:
 - கண்களுக்குப் பொருட்களைத் தெரிவிக்கும்
5. பிராசக பித்தம்:
 - தோலுக்கு ஒளியைத் தரும்

பித்தம் மிகு குணம்:

1. கண், மலம், சிறுநீர், தோல் இலைகள் மஞ்சள் நிறமடைதல்
2. பசி, நீர் வேட்கை மிகுதிப்படல்
3. உடல் முற்றும் எரிச்சலுண்டாதல்
4. குறைந்த தூக்கம்

பித்தம் குறைய குணம்:

1. மந்தாக்கினி
2. குளிர்ச்சி
3. நிறக்குறைவு
4. இயற்கை ஐய வளர்ச்சிக்குக் கேடு உண்டாதல்

கபம் (ஐயம்):

1. ஐய வடிவத் தன்மை:

தண்மை, நெய்ப்பு, மந்தம், வழுவுழுப்பு மென்மை, திண்மை

2. ஐயம் வாழுமிடம்:

❖ விந்து

- ❖ நாக்கு
- ❖ கொழுப்பு
- ❖ குருதி
- ❖ மார்பு

3. ஐயத்தின் இயற்கைப் பண்பு

பசி, நீர்வேட்கை, துயரம், கலக்கம், வெப்பம் இவைகளைப் பொறுத்துக் கொள்ளல்.

5. ஐயம் உடலின் செய்தொழில்:

என்பில் ஏதோ பூசப்பட்டது போன்ற உணர்ச்சி
கீல்கள் தொழில் புரியாதிருத்தல்
ஊண் விரைவில் செரியாமை
கண், தோல், மலம், சிறுநீர் வெண்ணிறமடைதல்

5. ஐயத்தின் பிரிவுகள்:

5 வகைகள்

1. அவலம்பகம்
2. கீலேதகம்
3. போதகம்
4. தற்பகம்
5. சந்திகம்

1. அவலம்பகம்:

- நுரையீரலில் இருந்து கொண்டு இருதயத்தை கட்டுபடுத்துகிறது.

2. கிலேதகம்:

- இரைப்பையிலிருந்து கொண்டு உணவுப் பொருளை ஈரப்படுத்தும்.

3. போதகம்:

- நாவிற்கு சுவையை அறிவிக்கும்

4. தற்பகம்:

- தலையினின்று கண்களுக்கு குளிர்ச்சியைத் தரும்

5. சந்திகம்:

- எல்லாக் கீல்களையும் ஒன்றோன்டொன்று பொருத்திக் தளரச் செய்து கொண்டிருக்கும்.

ஐவகை நிலங்களும் பிணிகளும்:

1. குறிஞ்சி நிலம்:

- இதில் வசிப்பவர்களுக்கு ஆமைக் கட்டி (ஈரல் கட்டி) உண்டாகும்.

2. பாலை நிலம்:

- முக்குற்ற நோய்கள் உண்டாகும்.

3. முல்லை நிலம்:

- பித்த நோய் மற்றும் ஈரல் நோய் உண்டாகும்

4. நெய்தல் நிலம்:

- வாதநோய் மற்றும் ஈரலைப் பெருக்கும்.

5. மருத நிலம்:

- முக்குற்ற நோய்கள் குணமாகும்

.காலம் (பொழுது):

காலத்தின் வகைகளைப் பொருத்து மக்களின் தன்மைகள் மாறுபடும். இதனால் எளிதில் நோயைக் கணிக்க ஏதுவாகும்.

காலத்தினை ஆறு பகுதிகளாகப் பிரிக்கலாம்

- | | | |
|------------------------------|---|--------------------|
| 1. கார்காலம் (மழைகாலம்) | - | ஆவணி, புரட்டாசி |
| 2. கூதிர்காலம் (குளிர்காலம்) | - | ஐப்பசி, கார்த்திகை |
| 3. முன் பனிக்காலம் | - | மார்கழி, தை |
| 4. பின் பனிக்காலம் | - | மாசி, பங்குனி |
| 5. இளவேனில் காலம் | - | சித்திரை, வைகாசி |
| 6. முதுவேனில் காலம் | - | ஆனி, ஆடி |

காமாலை நோய்கள் அதிகமாக கார்காலம் மற்றும் கூதிர்காலத்தில் உண்டாகின்றன.

உடல் வன்மை:

3 வகைப்படும்

1. இயற்கை வன்மை
2. கால வன்மை
3. செயற்கை வன்மை

காமாலை நோயில் இயற்கை வன்மை மற்றும் கால வன்மை பாதிக்கப்படுகின்றன.

ஏழு உடற் கட்டுகள் (அல்லது) ஏழு உடற் தாதுக்கள்:

இது உடலுக்கு வன்மையைத் தருகின்றன.

1. சாரம்:

❖ உடலையும் மனதையும் ஊக்கமுறச் செய்வது.

2. செந்நீர்:

❖ அறிவு, வன்மை, ஒளி, செருக்கு, ஒலி இவைகளை நிலைக்கச் செய்வது.

3. ஊண்:

❖ உடலின் உருவத்தை அதன் தொழிற்கிணங்க அமைத்தலும், என்பை வளத்தலுமாம்

4. கொழுப்பு:

❖ உறுப்புகள் கடினமின்றி இயங்க உதவுகிறது.

❖ அவற்றிற்கு நெய்ப்புப் பசை ஊட்டி உதவிபுரிவது.

5. எலும்பு

❖ உடலை ஒழுங்குபட நிறுத்தி வைத்தல்

❖ உடலின் அசைவிற்கு அடிப்படையாயிருத்தல்

6. மூளை:

❖ மென்மையான உறுப்புகளைப் பாதுகாத்தல்

❖ என்புக்குள் நிறைந்து அவற்றிற்கு மென்மையும் வன்மையும் தருவது.

7. வெண்ணீர்:

❖ தன்னையொத்த உருவப் பெருக்கிற்கு இடமாகிய கருத்தோற்றத்திற்கு முதலாய் நிற்பது.

❖ மஞ்சட் காமாலை நோயில் சாரம், செந்நீர் பாதிக்கப்படுகிறது.

நோயின் முடிவு நிலை:

“ தானான காமாலை பதிமூன்றாகும்
சாத்தியந் தானேழாகும் பேரேதன்னில்
பானான பித்தக்காமாலை யோடு
பரவு மஞ்சட்காமாலை சிலேட்டுமமாகும்
ஊனான ஊது காமாலையோடு
உணர்த்தும வறட்காமாலை வாத சிலேட்டுமம்
கோனான பித்த சிலேட்டுமக் காமாலை
குணமாகவே முந்தான் கூர்ந்து கேளே”
காமாலையின் 13 வகைகளில் தீரும், தீராதவை உள்ளன.

தீரும் வகைகள்:

1. மஞ்சள் காமாலை
2. அழல் காமாலை
3. ஐய காமாலை
4. ஊது காமாலை
5. வறள் காமாலை
6. வளி ஐய காமாலை
7. அழல் ஐய காமாலை

தீராத வகைகள்:

1. கும்ப காமாலை
2. குன்ம காமாலை
3. வாத காமாலை
4. முக்குற்ற காமாலை
5. அழகு காமாலை
6. செங்கமல காமாலை

மஞ்சட் காமாலை நோயின் அசாத்திய குறிகுணம்:

1. சீதக் கழிச்சல் காணுதல்
2. நின்று கொண்டே தூங்குதல் (மயில் போல)
3. சிறுநீர் மஞ்சளித்து குழம்பு போல் வெளியேறுதல்
4. மூக்கு வாசனை தெரியாமல் இருத்தல்
5. பிணத்தைப் போல் அசையாமல் கிடத்தல்
6. பொறுக்க முடியாத வயிற்று வலி காணல்
7. புறங்கால், முகம், உடல் வீக்கம் காணல்
8. கண் பார்வை மங்கலாதல்
9. இருதய பாதிப்பு ஏற்படல்
10. உடல் முழுவதும் முடி உட்பட கழற்சிக்காய் நிறமாக இருத்தல் - யுகிமுனி
11. வீக்கம் ஏற்படல்

மருத்துவம்:

அழல் குற்றம் பாதிக்கப்பட்டு இருப்பதால் அதைத் தன்னிலைப்படுத்த
“வமனத்தால் பித்தம் தாழும்” என்ற கூற்றுப்படி வாந்தி செய்விக்க வேண்டும்.
இந்நோயின் பித்தநீர் அதிகப்பட்டு கூடியதால் இரத்தமும் நன்னிலையில் இல்லாது
இருப்பதால் மிகுந்துள்ள பித்தநீரை வெளியாக்கவும், இரத்தத்தின் வன்மையைப்
பெருக்கவும் மருந்து கொடுக்க வேண்டும்.

1. மிகுந்துள்ள பித்தநீரை வெளிப்படுத்த, வாந்தி செய்விக்கவும், கழிச்சலை உண்டாக்கவும் தக்க மருந்துகளை வழங்க வேண்டும்.
நோயாளியின் நிலை அறிந்து தேவைப்படின வாந்தி, கழிச்சலுக்கு மருந்து கொடுக்கவும்.
2. பித்தநீரைப் பெருக்கி மிகுந்துள்ள பித்தநீரை வெளியேற்ற சிறுநீர் பெருக்கி செய்கையுள்ள மருந்துகளை வழங்குதல் வேண்டும்.
3. இரத்தத்தின் வன்மையைப் பெருக்க, அயச்சத்துள்ள மருந்துகளை வழங்க வேண்டும்.
4. இந்நோயில் பசித்தீ குறைந்துள்ளபடியால், பசித்தீயினைத் தூண்டக் கூடிய மருந்துகளை வழங்குதல் வேண்டும்.
5. ஈரல் இந்நோயில் பாதிக்கப்பட்டுள்ள காரணத்தால் ஈரல் தேற்றி மருந்துகள் வழங்குதல் வேண்டும்.
6. இந்நோயில் மலச்சிக்கல் மலத்தைக் கழிக்க தகுந்த மருந்துகளை வழங்க வேண்டும் (எண்ணெய் வகை கொடுக்கக் கூடாது).

மருத்துவம்:

- காமாலை நோய்க்கு கற்கம், குடிநீர், பற்பம், செந்தூரம், சூரணம், மாத்திரை போன்றவை கொடுக்கலாம்.
- வாந்தி ஏற்கனவே இருப்பதால் இந்நோயாளிகளுக்கு வாந்தி செய்விக்க வேண்டிய அவசியம் ஏற்படவில்லை.
- நோயாளிகள் குழந்தைகளாக இருப்பதால் கழிச்சல் மருந்துகளை அவர்களின் உடல் வன்மையைப் பொருட்டு வழங்கவில்லை.

• மருந்துகள்:

1. சீரக சூரணம் -1 (அ) 2 கிராம்

- மூன்று வேளை
- மோர் (அ) வெந்நீருடன்
- 7 முதல் 10 நாட்கள் வரை

2. மூக்கிரட்டை வேர் குடிநீர்

- 30 (அ) 60 மிலி
- காலை, மாலை
- 7 முதல் 10 நாட்கள் வரை

காமாலை நோயாளிகளுக்கான உணவுமுறை:

1. இளநீர்-தண்ணீர்
2. கரும்புசாறு, குளுக்கோஸ் தண்ணீர்
3. பார்லிக் கஞ்சி
4. ஆரஞ்சுச் சாறு (புளிப்பில்லாதது)
5. சாத்துக் குடிச்சாறு, இனிப்பான பழங்கள், வாழைப்பழம், ஆப்பிள், உலர்ந்த திராட்சை
6. குழைய வேகவைத்த சாதம்
7. வெண்ணெய் நீக்கிய மோர்
8. ஆவியில் வேக வைத்த இடியாப்பம், புட்டு, இட்லி+சீனி (அ) தேன்
9. துவரம் பருப்பு, பச்சை பயறு சேர்ந்த சாதம்

- | | | |
|--|---|-------------------------|
| 10. அரைக்கீரை மணத் தக்காளிக் கீரை பொன்னாங்காணிக் கீரை முருங்கைக் கீரை | } | ஆகியவைகள் சேர்ந்த சாதம் |
| 11. வெள்ளாட்டுப்பால் காய்ச்சிய ஏடு எடுத்தப் பால் | | |
| 12. தினமும் இருவேளை இளவெந்நீரில் குளிக்கவும் | | |

மஞ்சள் காமாலை நோயினால் தவிர்க்க வேண்டிய உணவுகள்:

1. உப்பு
2. புளிப்பு
3. காரம்
4. எண்ணெய், நெய் சேர்ந்த பொருள்கள்
5. புகை, புகையிலை
6. மதுபானங்கள்
7. பாகற்காய், அகத்திக்கீரை
8. மீன், கருவாடு, நண்டு, ஆட்டுக்கறி இதர வகை கவிச்சுப் பொருள்கள்.

LIVER AND BILIARY SYSTEM DEVELOPMENT AND FUNCTION

MORPHOGENESIS:

The liver and biliary system originate from a cluster of cells that cap a ventral diverticulum in the primitive fore gut. The hepatic anlage (pars hepatic) appears during the 4th wk of gestation as a duodenal diverticulum. Within the ventral mesentery proliferation of cells forms anastomosing hepatic cords, with the network of primitive liver cells, sinusoids, and septal mesenchyme establishing the basic architectural pattern of liver lobule.

The solid cranial portion of the hepatic diverticulum eventually forms hepatic glandular tissue and the intra hepatic bile ducts. The caudal portion (pars cystica) becomes the gall bladder, cystic duct and common bile duct.

The hepatic lobules are identifiable at the 6th gestational wk. the liver reaches a peak relative size at the 9th wk at about 10% of the fetal weight.

The bile canicular structures that include microvilli and junctional complexes are specialized loci of the liver cell membrane these appear very early in gestation and by 6-7 wk. large canaliculi bounded by several hepatocytes are seen.

The intra hepatic bile ducts are derived through branching of the hepatic duct, formation is complete by the 3rd month. The cystic duct and the gall bladder are fully reconstituted by the 7th – 8th wk.

In the hepatic excretory (biliary) system intercellular bile canaliculi empty into the smallest bile ductules, which unite to form inter lobular bile ducts that follow the terminal branches of the portal vein. At the hilum of the liver, the intra hepatic

ducts leave the branches of the portal vein and merge to form the extra hepatic biliary system.

The ducts of the right and left lobes form the common hepatic duct. The common bile duct is formed from the merger of the common hepatic duct and cystic duct. It runs along the right edge of the lesser omentum, terminating as the intramural papilla of Vater.

Union of the biliary tract with the pancreatic ducts forms the ampulla of Vater which with the sphincter of Oddi, regulates the flow of bile into the intestine, prevents entry of bile into the pancreatic duct, and inhibits reflex of intestinal contents into the ducts.

The transport and metabolic activities of the liver are facilitated by the structural arrangement of liver cells. Cords, which are formed by rows of hepatocytes, separated by sinusoids that converge toward the tributaries of the hepatic vein (the central vein) located in the center of the lobule.

This establishes the pathways and patterns of flow for substances to and from the liver. Plasma proteins and other plasma components are secreted by the liver.

Absorbed and circulating nutrients arrive through the portal vein or the hepatic artery and pass through the sinusoids and past the hepatocytes to the systemic circulation at the central vein.

Biliary components are transported via the series of enlarging channels from the bile canaliculi through the bile ductula to the common bile duct.

Bile secretion has been noted at the 12th gestational wk. The major components of bile vary with stage of development. Near term, cholesterol and phospholipids content is relatively low and low concentrations of bile acids, the absence of bacterially derived (secondary) bile acids and the presence of unusual bile acids reflect low rates of bile flow and immature bile acid synthesis.

Fetal hepatic blood flow is derived from the hepatic artery and from the portal and umbilical veins, which form the portal sinus. The portal venous inflow is directed mainly to the right lobe of the liver. Umbilical flow is primarily to the left.

The ductus venosus shunts blood from the portal and umbilical veins to the hepatic vein bypassing the sinusoidal network.

The ductus venosus becomes obliterated when oral feedings are initiated. The oxygen saturation is lower in portal than in umbilical venous blood. Accordingly, the right hepatic lobe has lower oxygenation and greater hematopoietic activity than the left hepatic lobe. Sinusoidal endothelium is the site of large macrophages which become the Kupfer (Retzius – endothelial) cell network.

The liver constitutes 5% of body weight at birth but only 2% in the adult. Early in gestation (7th wk) hematopoietic cells outnumber functioning hepatocytes in the hepatic anlage.

The hepatocytes are smaller (~20 µm) than at maturity (30-35µm) and contain less glycogen. Near term, the hepatocytes dominate the organ, and cell size and glycogen content increase. Hemotopoiesis is virtually absent by the 2nd postnatal month in full-term infants. As the density of hepatocytes increases with gestational age, the relative volume of the sinusoidal network decreases.

ANATOMY

Liver.

SYNONYM:

Hepar (the term hepatic)

DEFINITION:

Liver is the largest gland in the body.

Situated in the right upper quadrant of the abdominal cavity.

Most of it is covered by the ribs and costal cartilages. Except in the upper part of the epigastrium.

LOCATION:

It occupies in the right. Hypochondrium greater part of the epigastrium. And extends in to the left hypochondrium. Up to the left lateral line.

SHAPE:

It is wedge shaped, It resembles a four sided pyramid laid on the one side. With its apex directed towards the left.

COLOUR:

Reddish brown

Soft and very friable

WEIGH:

1400 – 1800 grams in males
1200 – 1400 grams in females
A range of 1000 -2500 gram.
In foetus – 1/25 of body weight
In adult – 1/40 of body weight

EXTERNAL FEATURES:

Mainly it has two surfaces.

1. Diaphragmatic (In contact with the diaphragm)
2. Visceral (In contact with several abdominal viscera)

DIAPHRAMATIC SURFACE:

It is boldly convex, molded to the under surface of the diaphragm.
It is subdivided into.

1. Anterior
2. Posterior
3. Superior
4. Inferior
5. Right.

The inferior surface is well defined because it is demarcated by the sharp inferior border.

VISCERAL SURFACE:

It is flat and slopes downwards forwards and to the right from the posterior surface.

There is no clear dividing line.

ONE PROMINENT BORDER:

The inferior border is prominent border
It is sharp anteriorly
It separates the anterior from the inferior surface
It is laterally rounded
It separates the right from the inferior surface.

The sharp anterior part is marked by 2 notches

- i) Inter lobar notch, ii) Cystic notch

i) INTER LOBAR NOTCH:

The notch of ligamentum terus.

ii) A CYSTIC NOTCH:

- i) The fundus of the gall bladder.
In the epigastrium the inferior border extends from the left 8th costal cartilage.
To the right 9th costal cartilage.
- ii) Other borders are rounded and ill defined.

LOBES:

Liver is divided into the 2 lobes

- i) Right lobe
 - ii) Left lobe
- Anterior
- And
- superior
- } By the falciform ligament

Inferiorly – By the fissure for ligament terus.

Posteriorly – By the fissure for ligament venous.

i) Right lobe:

- It is larger
- 5/6 part of liver
- It has 2 additional lobes
 - i) caudate lobe
 - ii) quadrate lobe.
- Caudate lobe
 - It is situated on the posterior surface
 - Bounded by the groove for inferior vena cava

Left – By the fissure for ligamentum venosum.

Inferiorly – porta hepatics.

It is continuous with

Above – superior surface

Below – Right

- Behind the porta hepatics

It connects to the right lobe of liver by the caudate process.

Below and left it presents small rounded elevation called the papillary process.

QUADRATE LOBE:

- situated inferior surface
- Rectangular shape
- It is bounded

Anterior- by the inferior border

Posterior – by the porta hepatic

PORTA HEPATIS:

It is a deep transverse fissure

- situated in inferior surface of the Rt lobe of the liver
- It between the

Above - caudate lobe

Below – quadrate lobe

LEFT LOBE:

- It is smaller
- Only 1/6 part of liver
- It is flattened
- Its inferior surface near the fissure for ligamentum venosum.
- A rounded elevation called the omental tuberosity (tuber omentale)

I PERITONEAL RELATIONS:

The liver is mostly covered by peritoneum.

It includes “Bare area”,

- i) Bare area:
 - The posterior surface of the right lobe of liver.
 - Limited by coronary and right triangular ligament.
- a) Groove for inferior vena cava

It is between caudate and main bare area
- b) Gall bladder

Inferior surface of rt lobe of liver.
- c) Porta hepatic

It is lined by folds of peritoneum.

ii) PERITONEAL LIGAMENTS:

a) Falciform ligament:

- antero superior surface of the liver
- to anterior abdominal wall and diaphragm.

b) Left triangular ligament:

- Superior surface of Lt lobe of liver.
- To diaphragm.

c) Right triangular ligament:

- Lateral part of the posterior surface of Rt lobe to diaphragm.

d) Coronary ligament:

- Superior and Inferior surface
- Bare area of liver

e) Lesser omentum

II VISCERAL RELATIONS:

- i) Anterior surface
- ii) Posterior surface
- iii) Superior surface
- iv) Inferior surface
- v) Right surface

i) Anterior surface:

- It is triangular and slightly convex
- Related to xyphoid process and anterior abdominal wall, diaphragm on eachside
- Drawn from xiphisternal joint to the 10th rib in mid axillary line
- Join to 8th rib
- Falciform ligament is attached little

ii) Posterior surface:

- it is triangular and concave
- vertical impression in middle
- It is related to diaphragm & Rt supra renal gland near groove for inferior vena cava.
- Groove for Inferior vena cava – upperpart of liver caudate lobe- related to crura of diaphragm.
- Fissure for ligamentum venosum – very deep
- In front of caudate lobe
- Posterior surface of the left lobe is marked by oesophageal impression.

iii) Superior surface:

- quadrilateral and concave
- In middle cardiac impression is present.

INFERIOR SURFACE:

- Quadrilateral
- Left – downwards and backwards
- Impression – neighbouring viscera
-

Concave gastric impression for stomach

Fissure for ligamentum teres for portal vein quadrate lobe is related to 1st part of duodenum

Pylorus

Omentum

Porta hepatic, gall bladder fossa lodges the gall bladder.

Rt lobe inferior surface – colic impression

Rt . kidney - Renal impression

Second part of duodenum – duodenal impression Right surface.

- Quadrilateral & convex
- Diaphragm Opposite the 7th to 11th rib

BLOOD SUPPLY:

- 20% of blood supply from hepatic A
- 80 % Portal vein

BILE PIGMENT METABOLISM:

- The breakdown of haemoglobin liberates the porphyrin moiety in the form of a tetra pyrrol ring. Which is split and reduced to form the bile pigment.

SECRETION OF BILE:

- Hepatocytes
(The parenchyma consists of rows of Liver cells)
- The two rows of cords of the cells surrounded by the sinusoids
- A cleft like lumen exists between the apposed cell membranes of the two rows of hepatic cells.
- This cleft called the bile canaliculus.
- The liver cells discharge their secretion called BILE.

BILE

Fresh human bile is a clear golden yellow liquid formed.

It is secreted by the liver

It is slightly viscous and bitter taste

Its P^H varies from 7.5 to 8.5

About 5000 to 700ml are secreted daily by the liver

500 ml is stored in the gall bladder.

It is concentrated and periodically discharged in to the small intestines

The bile in gall bladder is more viscous and has a greenish tinge. Because of the presence of bile pigments.

DURING DIGESTIN:

The gall bladder contracts to supply bile to the intestines. Via the common bile duct. The bile mixes with the pancreatic juice and exerts important influence on the digestion of fats of food.

BILE CONTAINS:

1 to 4 % of solids

25% are inorganic constituents main in organic constituents are Bicarbonates and chlorides of sodium

- i) Potassium
The remaining part contains
- i) organic materials
Bile – Bile salts

Bilirubin
 Cholesterol
 Small amount of phospholipids
 Fats
 Fatty acids
 Mucin
 Urea
 Enzyme – alkaline phosphates

The inorganic constituents } **Are products of excretion**
 And
 Bile pigments

And are removed from blood by the liver cells by biliary excreting.

The bile sates
And bile cholesterol } Are formed in the polygonal cells of liver.

The liver alkaline phosphate also originates from these cells.

Mucin is formed from the epithelium of bile duct and mucosa of gall bladder.

The cholesterol of bile is synthesized by the liver. Composition of hepatic bile and gall bladder bile.

| Hepatic Bile (P ^H 7.1 to 8.5) | | Gall Bladder Bile (PH 5.5 to 7.7) |
|--|--------------------------|-----------------------------------|
| Constituents | Percentage of Total Bile | Percentage of Total Bile |
| Specific gravity | 1.009 to 1.013 | 1.026 to 1.032 |
| Water | 97.00 | 85.92 |
| Solids | 2.52 | 14.08 |
| Bile acids | 1.93 | 9.14 |
| Mucin and bile pigments | 0.53 | 2.98 |
| Cholesterol | 0.06 | 0.26 |
| Fats and fatty acids | 0.14 | 0.32 |
| Inorganic salts | 0.84 | 0.65 |
| P ^H | 7.1 to 8.5 | 5.5 to 7.7 |

Gall Bladder and the storage of Bile.

The liver secretes between 500 – 1000 ml of Bile per day. Which travels down the hepatic ducts and passes along the cystic duct to be stored in the gall bladder.

Gall bladder:

It is a pear shaped dilated sac

Lined by mucous membrane a thin layer of smooth muscle fibers and fibro elastic tissue.

The mucosal epithelium consists of columnar cells showing microvillus infolded basal membrane and numerous mitochondria features.

The characteristic of cells involved in active transport.

The capacity of gall bladder is 50ml

It communicates the cystic duct

The mucosa of the duct shows spiral folds.

Act as a spiral valve (Valve of Heister)

The cystic duct joints the hepatic duct to form the common bile duct

It joints the main pancreatic duct do open into the duodenum.

Bile is secreted continuously by the liver. It is required only intermittently by the intestine. There fore when not required it is stored in the gall bladder.

Regulation of Biliary secretion:

The bile is permitted to enter the duodenum is determined by two factors.

- 1) the rate of formation of bile by the liver or choleresis
- 2) The evaluation of stored bile from the gall bladder on chore cyst kinesis.

THE RATE OF SECRETION OF HEPATIC BILE: (CHOLERESIS)

-In man is about 13 to 65 ml per hour is influenced by several factors.

- Which increase the output of bile without necessarily changing its concentration is called choleretics.

-Affecting the solid contents is called hydro choleretics.

-Bile salts act as powerful choleretics

-This biliary ductal component of bile secretion is under neuro hormonal control.

Hydrochloric acid acid chime in the duodenum have also been shown to increase water and electrolyte secretions of bile.

-Hepatocrinin having a potent choleretic effect on the liver.

EVACUATION OF GALL BLADDER BILE (Cholecys to Kinesis)

-The duodenum is brought about by neural and hormonal control.

-Which bring about evacuation of stored bile in to the duodenum by contracting the gall bladder are called cholagogues or a cholecys to go gues.

- Intrinsic extrinsic nerves are involved in cholecystokinesis.
- The reflexes through either intrinsic plexuses or by extrinsic afferents impriging on vassal nuclei (probably raso –vagal) to inhibit the gall bladder contractions.
- (Choledochod wodenal sphincter)

FUNCTIONS OF BILE:

Bile salts are most important for their role in digestion and absorption particularly of fats.

To provide the alkaline pH for neutralization of acid chyme.

EMULSIFICATION OF FATS:

The detergent or hydrotropic property of bile salts helps to lower the interfacial tension between the oil and water phases in a mixture.

FORMATION OF MICELLAR SOLUTIONS:

They activate pancreatic lipase they are known to be absorbed on to the surface of the lipid globules in the emulsion and the biolytic activity of pancreatic lipase.

SECRETION OF PANCREATIC JUICE:

Bile salts in the duodenum stimulate secretion of pancreatic juice.

Secretion of pancreatic lipase.

ENTEROKINASE:

Bile salts increase the release of Enterokinase from the microvillous membrane of the duodenal mucosal cells.

EXCRETION:

Bile acts as an important vehicle for the excretion of numerous drugs, toxins and salts of heavy metals like copper, zinc and mercury.

LAXATIVE:

Mild laxative effect on the gut by stimulating peristalsis in the small bowel.

ANTISEPTIC ACTION: Inhibits the growth of certain bacteria.

BLOOD SUPPLY TO THE LIVER:

Blood enters the liver through the portal vein and the hepatic artery.

PORTAL VEIN:

It is formed by the union of the superior mesenteric vein. Which drains blood from the major part of the gastrointestinal tract and the splenic vein.

Which is the venous drainage of the spleen pancreas, gall bladder and Stomach.

Superior mesenteric vein drains mainly into the right lobe of liver.

Splenic vein mainly goes to left lobe.

The portal vein divides into branches. Which will be within the portal

tracts and form sinusoids between the plates of hepatic cells.
The various sublobular veins unite to form the hepatic vein.

HEPATIC ARTERY:

The arterial blood to the liver and supplies the portal tracts and the bile ducts. If anastomoses within the liver parenchyma in a complex manner draining both into the sinusoids as well as into the branches of the portal vein.

It is the common venous outflow of the liver.

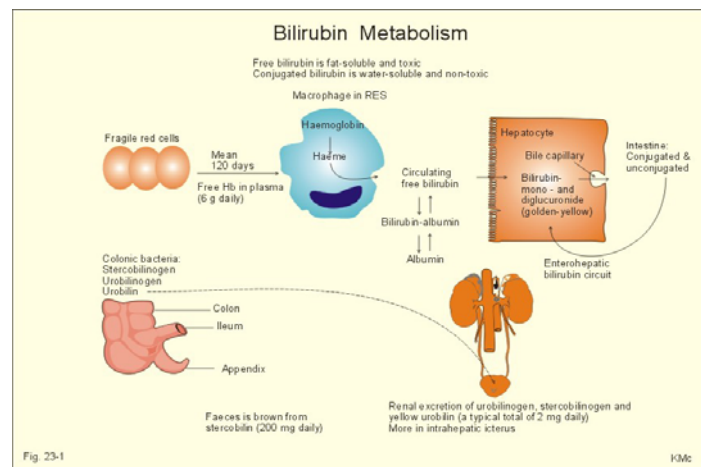
NERVUS INNERVATION OF LIVER:

The nerve supply to the liver is arranged in two plexuses at the hilum of the organ, the anterior plexus from left celiac ganglion

The left vagus provides the parasympathetic supply to this plexus.

Both the anterior and posterior plexuses join together to provide intra hepatic innervation.

The right phrenic nerve also supplies sensory fibres to the liver.



FUNCTIONS OF LIVER

1.STORAGE FUNCTION:

Many substances are stored in liver

- Glycogen
- Amino acids
- Iron
- Folic acid
- Vitamins A, B12 and D.

2. SYNTHETIC FUNCTION:

- Plasma proteins
- Blood group substances
- Clotting factors
- Somatomedin
- Heparin

Are synthesized in liver.

3.SECRETION OF BILE:

Liver secretes bile, It contains bile salts, Bile pigments, cholesterol, fatty acids and lecithin.

-The bile salts are required for digestion and absorption of fats in the intestine.

4.METABOLIC FUNCTION:

Carbohydrate
Proteins
Lipids
Vitamins
Many of hormones in liver.

5.EXCRETORY FUNCTION:

Liver excretes cholesterol,
Bile pigments
Heavy metals (lead, arsenic, bismuth)
Toxins
Bacteria – typhoid
Virus

6.HEMOPOIETIC FUNCTION:

Heat is produced in liver due to metabolic actions.

7.HEMOPOIETIC FUNCTION:

In fetus (hepatic stage) the blood cells are produced in liver.

8.HEMOLYTIC FUNCTION:

RBC life span is 120 days

It is destroyed by the kupffer's cells are the reticulo endothelial cell in liver.

9.DEFENSIVE AND DETOXIFICATION FUNCTIONS:

- Detoxification of foreign bodies
- Bacteria are swallowed digested phagocytosis
- Antibody production
- Detoxification → Removal of toxic property.

i) Metabolic degradation

ii) Toxic substances converted into non-toxic materials → conjugation with glucuronic acid or sulphates.

JAUNDICE

Jaundice refers to the yellow appearance of the skin, sclera and mucous membranes resulting from an increase bilirubin concentration in the body fluids. It is detectable when the plasma bilirubin exceeds $50\mu\text{ mol /l}$ (3mg/dl).

Internal tissues and body fluids are colored yellow but not the brain as bilirubin does not cross the blood brain barrier other than in the immediate neonatal period.

MECHANISMS PRODUCING JAUNDICE

- Haemolysis
- Impaired hepatic bilirubin transport
- Hepato cellular damage
- Cholestasis (impaired bile flow)

HAEMOLYTIC JAUNDICE

This results from increased destruction of red blood cells or their precursors in the marrow causing increased bilirubin production.

Jaundice due to haemolysis is usually mild because a healthy liver can excrete a bilirubin load 6 times greater than normal before unconjugated bilirubin accumulates in the plasma.

Exceptions to this occur in the newborn when the hepatic bilirubin transport mechanism is immature and in patients with liver disease.

CLINICAL FEATURES:

- Increased excretion of bilirubin

-Stercobilinogen leads to normal colored stools

-(or) Dark stools

Increased urobilinogen excretion causes the urine to turn dark on standing as urobilin is formed.

- Pallor due to anemia
- Splenomegaly – due to excessive reticulo endothelial activity.

INVESTIGATION:

The plasma bilirubin is less than 100 μ mol/l (6mg/dl)

Liver Function test –Normal

No bilirubinuria

Unconjugated Hyper bilirubinemia present

Haemolytic anaemia present.

MANAGEMENT:

- Splenectomy results in
 - persistent anemia
 - Severe hemolytic or aplastic crisis
 - Family members are died from this disease.
 - Evidence of cholelithiasis, cholecystitis, cholelithiasis

HEPATO CELLULAR JAUNDICE:

Hepato cellular jaundice results from inability of the liver to transport bilirubin in to the bile as a result of liver cell damage, Bilirubin transport across the hepatocytes may be impaired. Between uptake of bilirubin (on conjugated) and transport of conjugated bilirubin in to the canaliculi.

Swelling of cells and oedema result from the disease may cause obstruction of the biliary canaliculi concentration in the blood of unconjugated and conjugated bilirubin is increased. Bilirubin transport is disturbed.

Acute parenchymal liver diseases due to viral hepatitis,

Prolonged alcohol abuse

Chronic hepatitis

Cirrhosis

CHOLESTATIC JAUNDICE:

It is a failure of bile flow between the hepatocyte and the duodenum.

Jaundice becomes progressively severe in unrelieved cholestasis because conjugated bilirubin is unable to enter the bile canaliculi and passes back into the blood. Failure of clearance of unconjugated bilirubin arriving at the liver cells.

AETIOLOGY:

- Failure of the hepatocytes to generate bile flow.
- Obstruction to bile flow in the bile ducts in the portal tracts.
- Obstruction to bile flow in the extra hepatic bile ducts between the porta hepatic and the papillae of water

CLINICAL FEATURES:

Early Features

Jaundice

Dark urine

Pale stools

Pruritus

Late features:

Xanthelasma and xanthomas

Mal absorption

Weight loss

Steatorrhoea

Bleeding tendency

Fever

Rigors

Pain

Biliary infection

Hepatic abscess

INVESTIGATION:

Ultra sonography – donot show dilated bileduct

Antimito chondrial antibody

ERCP is the best investigation is the biliary tract is dilated.

Dilatation extends to the lower common bile duct.

TTC is used only if ERCP is unavailable

MANAGEMENT:

This depends on the underlying cause of the cholestasis

UNUSUAL FORMS OF CHOLESTASIS:

CHOLESTASIS OF PREGNANCY:

It is caused by an inherited susceptibility of the patient's liver cells to oestrogens.
This condition is sometimes precipitated by oral contraceptives.
Pruritus is the dominant symptom.
Jaundice.

Itching almost always starts in the third trimester of pregnancy and remits within about 2 weeks of delivery.

Pruritus can be relieved with cholestyramine no harm comes to the fetus but the condition tends to recur in subsequent pregnancies.

VIRAL HEPATITIS

Hepatitis A (Infective Hepatitis)

Viral hepatitis A (HAV) accounts for about 150,000 of the 500,000-600,000 new cases of viral hepatitis that occur each year in the United States. The hepatitis caused by HAV is an acute illness (acute viral hepatitis) that never becomes chronic. At one time, hepatitis A was referred to as "infectious hepatitis" because it could be spread from person to person like other viral infections. Infection with hepatitis A virus can be spread through the ingestion of food or water, especially where unsanitary conditions allow water or food to become contaminated by human waste containing hepatitis A (the fecal-oral mode of transmission). Hepatitis A typically is spread among household members and close contacts through the passage of oral secretions (intimate kissing) or stool (poor hand washing). It also is common to have infection spread to customers in restaurants and among children and workers in day care centers if hand washing and sanitary precautions are not observed.

Hepatitis A - Caused by the hepatitis A virus, Hepatitis A is often spreads because of poor personal hygiene habits, such as not washing hands after a bowel movement. You can also get hepatitis A by eating foods or drinking beverages contaminated with the virus. Hepatitis A is a common form of viral hepatitis in the United States This disease is responsible for serious health problems .

Signs and Symptoms:

Loss of appetite
Nausea

Vomiting
Fever
Weakness
Tiredness
Aching in the abdomen

Less common symptoms include:

Dark urine
Light-colored stools
Fever
Jaundice (a yellow appearance to the skin and white portion of the eyes)

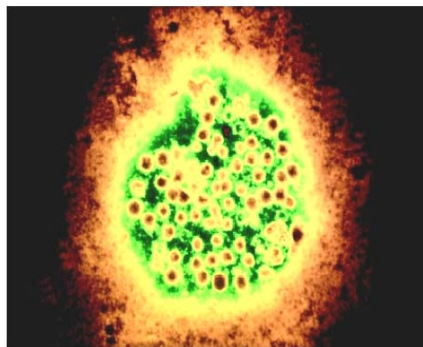
Diagnosis of viral hepatitis is based on symptoms, physical findings as well as blood tests for liver enzymes, viral antibodies, and viral genetic materials.

HEPATITIS A VIRUS

| | | |
|---------------|---|-----------------------------------|
| | - | Picorna virus |
| group of | - | Entero viruses |
| | - | HAV is Highly infectious |
| size | - | 27 nm |
| | - | Spread by the faecal – oral route |
| Nucleic Acid- | | It is a RNA virus. |

Incubation Period: 2-4 wks
- Children are commonly affected.

HEPATITIS “A” VIRUS



PREVENTION:

- Active immunization with an Inactivated virus vaccine (Harrix)

HEPATITIS “B” VIRUS

| | | |
|--------------|---|--|
| | - | Only hepadna virus causing infection in humans |
| Nucleic Acid | - | DNA virus |

Size - 42 nm

Incubation period - 4-20 Weeks.

mode of spread - Blood transfusion.

- Blood products
- Parenteral drug abusers
- Tattooing
- Acupuncture
- In adequately sterilised needles.
- sexual intercourse
- male homosexuals

Trans placental spread - mother to child transmission

CHRONIC INFECTION - Chronic liver disease.

PREVENTION:

- Hepatitis B vaccine containing HBs Ag (Engerix) (Active immunisation)
- Intramuscular injection of Hyperimmune serum globulin prepared from blood containing anti – HBs Should be given within 24 hours or at most a week.
- Hyper immune globulin – active – passive immunisation.

HEPATITIS “C “VIRUS

Group - Flavivirus

Nucleic acid - RNA virus

Size - 30 – 38nm

Incubation period - 2 – 26 weeks

mode of transmission - Blood products

- Parenteral drug abusers
- Sporadic infection
- Sexual and vertical transmission

CHRONIC INFECTION - Chronic liver disease

PREVENTION - No vaccination

HEPATITIS D VIRUS

Group - Defective virus

- Incomplete virus

Nucleic acid - RNA

Size - 35nm

Incubation - 6-9 wks

mode of transmission - Blood transfusion

- Sexual and vertical

| | | |
|-------------------|---|--|
| CHRONIC INFECTION | - | Chronic carriers of the hepatitis B virus |
| | - | Acute hepatitis |
| | - | Chronic hepatitis |
| | - | Cirrhosis |
| PREVENTION | - | Prevented by prevention of hepatitis B virus infection |

HEPATITIS E VIRUS

| | | |
|----------------------|---|-----------------------|
| | - | RNA Virus |
| Size | - | 27nm |
| Incubation period | - | 3 – 8 wks |
| mode of transmission | - | By Faecal – oral rout |
| | - | Water borne hepatitis |
| Prevention | - | No vaccine. |

OTHER VIRUSES:

- Cytomegalovirus
- Epstein – Barr Virus – cause abnormal liver function
- Herpes simplex
- Yellow fever virus.

CLINICAL FEATURES:

- ➡ Jaundice by a fewdays to 2wks
- ➡ Chills, headache, malaise
- ➡ Anorexia
- ➡ nausea
- ➡ vomitting
- ➡ Diarrhoea
- ➡ Abdominal pain
- ➡ Enlarged liver
- ➡ Enlarged cervical lymph nodes
- ➡ Splenomegaly in children
- ➡ Arthralgia
- ➡ Serum Sickness syndrome }
- ➡ Urticaria } -- in Hepatitis B infection
- ➡ Poly arthritis }
- ➡ Dark yellow urine
- ➡ Yellow tint to the sclerae

INVESTIGATIONS:

- A plasma Aminotransferase 400 U / L
- Plasma bilirubin
- Alkaline phosphatase 250 U / L
- Prothrombin time for liver damage

Serological tests:

It can Identity Hepatitis Antigens.

COMPLICATIONS:

- Fulminant hepatic failure
- Cholestatic hepatitis
- Hyper bilirubinemia (Gilbert's Syndrome)
- A plastic anaemia
- Connective tissue disease.
- Renal failure
- Chronic hepatitis
- Cirrhosis (Hepatitis B,C and D viruses)
- Hepato cellular carcinoma.

MANAGEMENT:

BED REST:

Should be continued until symptoms and signs have disappeared.

DIET:

Glucose
Fruit drinks
Light diet
Good protein intake.
Sugar cane Juice.

NEONATAL JAUNDICE

Jaundice occurs when the liver cannot Excrete bilirubin

2 Types

- i) Physiology
- ii) Pathology

PHYSIOLOGY: -

Elevation of un conjugated bilirubin concentration during the first week.

- 1) Increase bilirubin load on liver cells.
- 2) Defective hepatic uptake of bilirubin from plasma.
- 3) Defective bilirubin conjugation
- 4) Defective bilirubin Excretion.

PATHOLOGICAL:

- i) Conjugated hyper bilirubinemia
- ii) Un conjugated hyper bilirubinemia.

Un conjugated hyper bilirubinemia.

More than 5mg / dL / 24 hours

CAUSES: -

- i) Increased production.

Feto maternal blood group in compatibility
Rh, ABO
Hereditary Spherocytosis
Non – Spherocytic anaemia
Sepsis

Increased entero hepatic circulation

- ii) decreased clearance.
Inborn errors of metabolism
Drugs and hormones.

COMPLICATIONS:

1. Increase in environment and body temperature
2. Retinal damage
3. Bronze baby syndrome.
4. Electric shock.

CONJUGATED HYPER BILI RUBINEMIA:

Total bilirubin Direct > 2mg / dl.

It is associated with.

- ii) Biliary atresia.
 - Congenital atresia of bile ducts

Clinical Features:

- Clay coloured stools
- Anaemia
- Fat soluble vitamin deficiency.

Liver biopsy:

Bile plugs in dilated ducts.

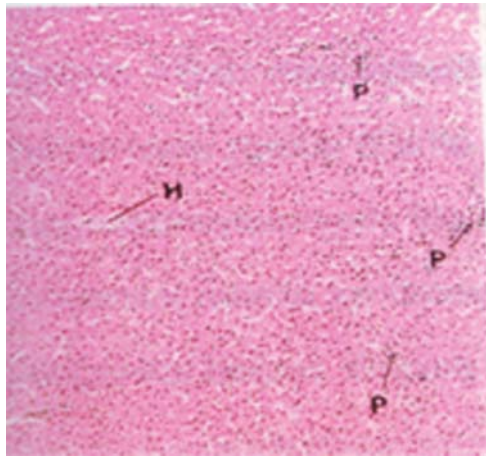
KERNICTERUS:

The Jaundice is presumably a consequence of metabolic and physiological adjustments after birth. In Extreme cases a brain – damaging condition known as kernicterus.

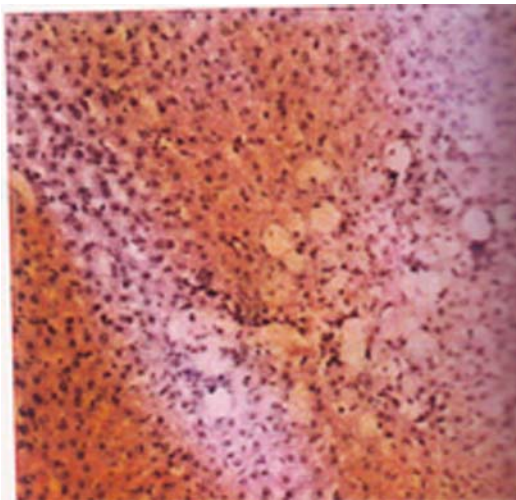
This condition has been rising in recent years due to inadequate detection and treatment of neonatal hyperbilirubinemia.

Neonatal Jaundice is a risk factor for hearing loss.

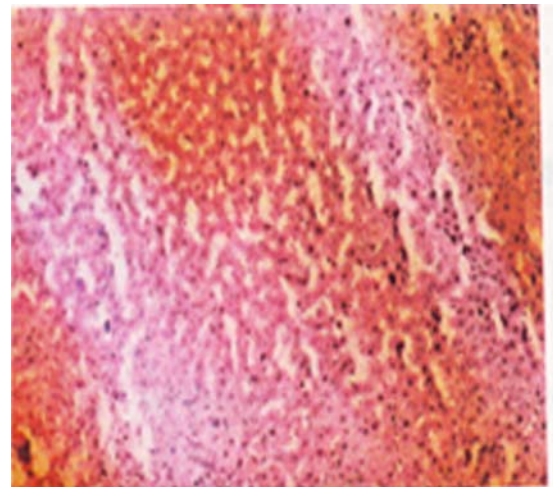
LIVER HISTOLOGY



Normal hepatic histology
(P - Portal tract; H - Terminal hepatic vein)



Liver section of Albino rat
after giving CCL4



Liver section of Albino rat
after giving CCL4 + Trial medicine

MATERIALS AND METHODS

This study was carried out at the department of Kuzhanthai maruthuvam. To standardize the efficacy of Jeeraga Chooranam and Mookirattai ver kudineer. The following protocols are maintained as materials for the dissertation.

Identification of the trial drug for study and its confirmation.

Trial drug preparation.

Biochemical studies

Pharmacological studies

Clinical trials.

COLLECTION OF TRIAL DRUG AND IDENTIFICATION

The raw drugs and fresh plant leaves for the trial drug and collected and the botanical identity was confirmed.

PREPARATION OF TRIAL DRUG

The raw drugs and fresh plant leaves are purified and dried well and then powdered and filtered in a cloth to arrive a fine powder.

The roots are dried and then Halfly powder form.

CLINICAL TRIALS

Twenty cases of both sexes in the age group below twelve years were selected from the out patient session and admitted in the post – graduate Kuzhanthai Maruthuvam ward.

EVALUATION OF CLINICAL PARAMETES

1. Cases with yellowish urine are taken for study.
2. The diagnosis was confirmed by clinical and laboratory criteria.

SIDDHA CLINICAL DIAGNOSIS

- i. Mukkutra Niligal
- ii. Envagai theruvagal
- iii. Vdal Kattu Nilaigal
- iv. Nilam
- v. Kaalam
- vi. Mummalam [malam, moothiram and viyarvai]
- vii. Vayathu [Age]
- viii. Thega nilai (udal vanmai)

INVESTIGATION

Urine

Bile salt

Bile pigment

Hemoglobin percentage

Serum bilirubin

Total :

Direct :

Indirect :

For the purpose of differential diagnosis, the following tests were carried out

- i) SGOT
- ii) SGPT
- iii) Serum Alkaline Phosphates
- iv) Australian Antigen (HBs Ag)

CASE PROFORMA

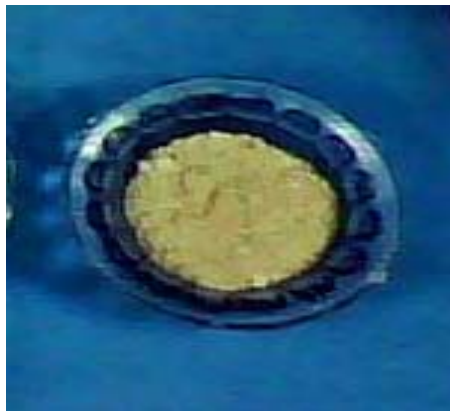
Specific signs and symptoms of the three varieties of kamalai are given. Among the three varieties. Manjal kamalai have been taken for research study with Jeeraga Chooranam, Mookirattai ver Kudineer.

PREPARED TRAIL MEDICINES

Mookirattai ver kudineer



Jeeraga chooranam



OBSERVATION AND RESULTS

Results were observed with respect of the following criteria

1. Sex distribution

2. Age distribution
3. Religion distribution
4. Kaalam
5. Paruva kaalam
6. Thinai
7. Socio economic status
8. Clinical features
9. Derangement of Uyirhathukkal
10. Udal kattugal
11. Envagai thervugal
12. Neerkur, Neikuri reference
13. Result after treatment.

1. Sex distribution

| S.No | Sex | No.of Cases | Percentage |
|------|--------------|-------------|------------|
| 1 | Male child | 11 | 55% |
| 2 | Female child | 9 | 45% |

For this study 20 patients were selected 11 were male and 9 were female
Graph showing sex distribution:

2. Age distribution:

| S.No | Age | No.of case | | Percentage | |
|------|--|------------|-------------|-------------|---------------|
| 1. | 0 to 1 month kappu and sengeerai | - | | - | |
| 2. | 1 month – 1year sengeerai | - | | - | |
| 3. | 1 years – 3 years thalattu,mutham, varugai, sappani | - | | - | |
| 4. | 3 years – 6 years Ambuli, chitri,sirupillai,Sirudher, Oonjal, pillai | Male 4 | Female 2 | Male 20% | Female 10% |
| 5 | 6 years – 12 years pethai,pethumbai,mangal,siruparuvam | Male 7 | Female 7 | Male 35 | Female 35% |

Out of 20 cases, 14 cases(70%) belongs to 6 -12 years and 6 cases (30%) belongs to 3 – 6 years age group.

3. Religion distribution:

| S.No | Religion | No.of cases | Percentage |
|------|-----------|-------------|------------|
| 1. | Hindu | 17 | 85% |
| 2. | Christian | 1 | 5% |
| 3. | Muslim | 2 | 10% |

Out of 20 cases, 17 cases (85%) belongs to Hindu, 1 case(5%) belonged to Christian and 2 case (10%) belongs to Muslim region.

4.Kaalam

| S.No | Kaalam | No.of cases | Percentage |
|------|--------|-------------|------------|
| 1. | Vatham | 20 | 100% |
| 2. | Pitham | - | - |
| 3. | Kabam | - | - |

All the cases were in vatha kaalam.

5.Paruva kaalam

Month of admission in the in – patient ward is taken for the following data

| S.No | Paruvakaalam | No.of cases | Percentage |
|------|-------------------------------------|-------------|------------|
| 1. | Kaar(Avani,Puratiasi) | 1 | 5% |
| 2. | Koothir kaalam(Iypasi,karthigai) | 9 | 45% |
| 3. | Munpani(Margali,Thai) | 9 | 45% |
| 4. | Pinpani(masi,pankuni) | 1 | 5% |
| 5. | Elavenil(chithirai,vaikasi) | - | - |
| 6. | Muthuvenil(Aani,Adi) | - | - |

The maximum incidence of manjal kamalai was during koothir kaalam and munpani kaalam.

6. Thinai (place)

| S.No | Thinai | No.of cases | Percentage |
|------|------------------------|-------------|------------|
| 1. | Kurinji(Hilarea) | - | - |
| 2. | Mullai(Forest area) | - | - |
| 3. | Marutham(Fertile area) | 20 | 100% |
| 4. | Neithal(coastal) | - | - |
| 5. | Palai(Deset area) | - | - |

Among the 20 cases, all belonged to maruthanilam, even though the literature says no disease coil occur in “Maruthanilam”, If did not correlate well with this study.

7. Socio- economic status.

| S.No | Socio-economic status | No.of cases | Percentage |
|------|-----------------------|-------------|------------|
| 1. | Poor | 18 | 90% |
| 2. | Middle class | 2 | 10% |
| 3. | Rich | Nil | Nil |

According to this study 90% of cases were poor and 10% of cases from middle class socio economic status.

8. Table showing clinical features

| S.No | Signs and Symptoms | During admission No.of cases. | During discharge No.of cases |
|------|---|-------------------------------|------------------------------|
| 1. | Nausea | 20 | Nil |
| 2. | Vomitting | 15 | Nil |
| 3. | Fever | 16 | Nil |
| 4. | Yellow coloured conjunctiva sclera and tongue | 20 | 3 |
| 5. | Yellow coloured urine | 20 | 3 |
| 6. | Anorexia | 20 | Nil |
| 7. | Constipation | 4 | Nil |
| 8. | Puritus | 4 | Nil |
| 9. | Abdominal pain | 16 | Nil |
| 10. | Irritability | 20 | Nil |
| 11. | Liver tenderness | 6 | 1 |

9. Distribution of Uyirthathukkal

a). Table showing derangement of vatham

| S.No | Vatham | No.of cases | Percentage |
|------|-------------|-------------|------------|
| 1. | Pranan | - | - |
| 2. | Abanan | 20 | 100% |
| 3. | Viyanan | 20 | 100% |
| 4. | Uthanan | 20 | 100% |
| 5. | Samanan | 20 | 100% |
| 6. | Naagan | - | - |
| 7. | Koorman | - | - |
| 8. | Kirukaran | 20 | 100% |
| 9. | Devathathan | - | - |
| 10. | Thananjeyan | - | - |

In all the 20 cases Abanan, viyanan, Uthanan, samanana and kirukaran were affected.

b) Table showing the derangement of pitham.

| S.No | Pitham | No.of cases | Percentage |
|------|-------------|-------------|------------|
| 1. | Anal pitham | 20 | 100% |
| 2. | Ranjagam | 20 | 100% |
| 3. | Saathagam | 20 | 100% |
| 4. | Prasagam | 20 | 100% |

| | | | |
|----|----------|---|---|
| 5. | Alosagam | - | - |
|----|----------|---|---|

Among the 5 types of pitham all were affected except Alogagam.

c) Table showing the derangement of Kabam

| S.No | Kabam | No.of cases | Percentage |
|------|-------------|-------------|------------|
| 1. | Avalambagam | - | - |
| 2. | Kilethagam | 20 | 100% |
| 3. | Pothagam | 20 | 100% |
| 4. | Tharpagam | 2 | 10% |
| 5. | Santhigam | 3 | 15% |

Kilethagam and pothagam were affected in all the cases, tharpagam was affected in 2 patients santhigam was affected in 3 patients.

10. table showing the conditions of udal kattugal

| S.No | Kabam | No of cases | Percentage |
|------|----------------------|-------------|------------|
| 1. | Saaram | 20 | 100% |
| 2. | Senner | 20 | 100% |
| 3. | Oon | - | - |
| 4. | Kozhuppu | - | - |
| 5. | Enbu | - | - |
| 6. | Moolai | - | - |
| 7. | Sukkila / suronitham | - | - |

In all the cases saram and senneer were affected.

11. Envagai thervugal

| S.No | Envagai thervugal | No of cases | Percentage |
|------|-----------------------------------|-------------|------------|
| 1. | Naadi: Pitha kabam Kaba pitham | - | - |
| 2. | Sparisam | 20 | 20 |
| 3. | Naa | 20 | 100% |
| 4. | Niram | 20 | 100% |
| 5. | Mozhi | - | - |
| 6. | Vizhi | 20 | 100% |
| 7. | Malam | 5 | 25% |
| 8. | Moothiram | 20 | 100% |

Sparism, Naa, Niram, vizhi, Moothiram were affected in all the 20 Patients. Malam was affected in 5 Patients.

12. Neerkuri, Neikuri reference

| S.No | Types of test | No.of cases | Percentage |
|------|------------------------------|-------------|------------|
| 1. | Neerkuri(Dark yellow colour) | 20 | 100% |
| 2. | Neikuri(Ring) | 20 | 100% |

Urine samples of all the 20 cases were shows dark yellow colour. Ring (Azhal) sign in Neikuri.

The following clinical investigations were carried out at the time of admission and discharge.

1. Serum bilirubin test
2. S. G. OT
3. S.G. P.T
4. Serum Alkaline phosphatase test
5. HBs Ag

14. Among the 20 cases studied the results were observed as follows

| S.No | Results | No.of cases | Percentage |
|------|-------------|-------------|------------|
| 1. | Good relief | 16 | 80% |
| 2. | Fair relief | 4 | 20% |
| 3. | Poor relief | - | - |

Among the 20 cases, admitted in the inpatient ward. 16 cases (80% showed good result and 4 cases (20%) showed fair result. The results were based on clinical improvement.

DISCUSSION

The three varieties of kamalai noi, Manjal kamalai is a clinical entity described by siddhars as pitha type of disease. Which is taken for clinical study in the post graduate department of Kuzhanthai Maruthuvam, Govt.Siddha Medical College, Palayamkottai. By its clinical features like fever, loss of appetite, nausea,

weakness yellowish discoloration of sclera. Conjunctiva, Urine mucosa and under the tongue are clinically identical with Infective hepatitis. A clinical entity described in modern medical literatures.

This study comprises primarily a survey of literatures in both siddha and modern aspects. In siddha texts like Balavagadam, Yugi Vaidhya chinthamani, Agasthiyar 2000 wealth of information of this clinical entity is available.

Modern text book like Nelson paediatrics, Essential paediatrics – O.P.Ghai, Fundamentals of paediatrics partha's and current pediatric diagnosis and treatment Lange's etc. were availed for modern aspects.

Siddhars – the ancient scientists, out of their experience recorded the undue exposure to sunlight, excessive intake of spices, sour, salt and pungent taste items are the causative factors. Modern medical science attributes a viral cause for this disease. Among 20 cases, the history given by most of the patients coincided much with the observations of Siddhars.

Generally in India there are many existing predisposing factors which produce jaundice. Economically poor social status and illiteracy are mainly responsible for the poor knowledge about Jaundice. Improper hygienic measures like unpreserved water supply and drainage system in most places and improperly preserved food items, contaminated needles and blood products favour the spread and development of this disease.

Siddhars laid great emphasis on Noi anuga vithi Ozhukkam.

“நீர் சுருக்கி மோர் பெருக்கி நெய்யுருக்கி
உண்பவர் தம் பேருரைக்கிற் - போமே பிணி”
- பதார்த்தகுண சிந்தாமணி

Non scientific treatment of jaundice like salt restriction undue starvation, lead to complications and thus increasing morbidity and mortality. Alcoholism and administration of hepato – toxic drugs cause damage to the liver, lack of facilities for routine screening of HBs Ag in blood donors, and commercial sexual workers play an important role in the spread of Infections jaundice. Accurate labeling of jaundice in every case is essential to study the nature and to take preventive measures.

This has given a clue that extensive experimental studies by researchers of bio-medical fields on the above points may bring new facts on the susceptibility of the individual for the development of this particular clinical entity. Among 20 patients admitted, 14 patients had given a history of contact with infected persons, and 6 patients given a history of persistent exposure to sunlight, and all had taking excessive spicy, sour and pungent taste items.

AGE, SEX AND SOCIO-ECONOMIC STATUS

Among the 20 patients, 6 patients belonged to the age group of 3 – 6 years, 14 patients belonged to the age group of 6-12 years, the entire group of patients belonged to the vatha period.

Among 20 cases admitted 11 were male children and 9 were female children.

Among 20 cases admitted for study, most of them belonged to the low income group.

PARUVAKAALAM

Pitham ‘thannilai valarchi adaithal’ (setting its season) period is Kaar kaalam, piranilai valarchi adaithal period is Koothir kaalam. In this study out of 20 patients, 1 patients were treated in Muthuvenil Kaalam, in this study out of 20 patients, 1 patients were treated in Muthuvenil kaalam, 9 patients were treated in koothir kaalam and 9 patients were treated in Munpani kaalam. The modern medical science also states that infective hepatitis commonly occurs in the autumn (September and October) (Third season of the year i.e., August, September and October).

AETIOLOGY

Generally from the history given by the patients, this disease is due to the dietetic, extrinsic and other factors (described in Siddha aspect), which also cause vitiation of Pitham and kabam. Siddhars have also stated the same cause described above for this disease Manjal kamalai that it is due to the derangement of Pitham, that affects the blood and forming this disease. The etiology of Manjal kamalai is based upon the Mukkutram is Siddha system of medicine.

In modern medical science, it is based upon the viral infection. The mode of infection is through stools contaminated water, blood transfusion and sexual act. Anatomical and physiological changes take place in the liver due to this infection.

In both systems, it is stated that any factor which causes damage to the liver, produce this disease. Hence the causes of this disorder given in Siddha system is more or less corresponding to that of modern medical science.

NILAM (FIVE KINDS OF LANDS)

Almost all the cases came from marutha nilam. This may be due to the location of the hospital is at Tirunelveli. So in order to access the geographical distribution in its true perspective a wider study is felt essential, which may be taken by future workers as a separate study. According to Siddhars thought marutha nilam is the safest place to maintain good health. But nowadays air pollution, water contamination and improper drainage have spoilt it.

MUKKUTRAM

VATHAM
PIRANAN

No history of dyspnoea was given by any patient. So there is no involvement of Piranan.

ABANAN

In some of the cases there was history of constipation and hence involvement of Abanan.

VIYANAN

In some cases complaints of body pain and pruritus were present. So involvement of Viyanan is inferred.

UTHANAN

Nausea and vomiting were present in all cases. It shows involvement of Uthanan.

SAMANAN

Loss of appetite, indigestion was present in all cases. So involvement Samanan.

NAGAN

None of the case was affected by Nagan.

KOORMAN

None of the case was affected by Koorman.

KIRUKARAN

In all cases nausea, vomiting, and salivation from the mouth were also present. It shows involvement of Kirukaran.

DEVATHATHAN

Devathathan was not affected in Manjal Kamalai.

THANANJEYAN
PITHAM:

ANAL PITHAM

Loss of appetite and dyspepsia were recorded in all cases. It shows involvement of anal pitham.

RANJAGAM

In all the cases serum bilirubin was above normal. So involvement of Ranjaga pitham.

SATHAGAM

In all the cases mental depression was present. so involvement of sathagam.

ALOSAGAM

No history of disturbed vision was noted in any case. So no involvement Alosagam.

PRASAGAM

There was yellowish discolouration of the conjunctiva, sclera and body with dry skin noted in all cases. It shows involvement of Prasagam.

KABAM

AVALAMBAGAM

There is no sign of respiratory involvement in all cases. It shows that avalambagam was not affected.

KILETHAGAM

There is a feature of dyspepsia in all cases. So the involvement of kilethagam.

POTHAGAM

In all cases complaints of bitter taste sensation were present. It shows involvement of Pothagam.

THARPAGAM

Among 20 cases 3 patients complains, there was burning sensation their eyes. So involvement of Tharpagam.

SANTHIGAM

Among 20 patients, 2 patients complaints of joint pain. So Santhigam was affected.

UDAL KATTUGAL

As per the signs and symptoms seen in 20 cases, the Saaram and senneer were affected in all cases. But the literature says if any one of the thathu was affected, others were also affected.

ENVAGAI THERUVUGAL NAADI

“அண்டிடவே தரித்திரர்கள் விருத்தர் பாலர்
அன்பாகத் தண்ணீரில் மூழ்கினோர்கள்”

- நோய்நாடல் பாகம் 1 (சதக நாடி)

என்பதன் மூலம் சிறுவர்களுக்கு நாடி நடை சரியாக கணிக்க முடியாது என்பது விளக்குகிறது. சிறுவர்களுக்கு உடல் வளர்ச்சி வேகம் அதிகமாக இருப்பதால் நாடியும் அதிகரித்து காணம். நாடிபார்க்கு முன் கடைபிடிக்க வேண்டிய விதிகளை பாலர்களுக்கு அனுசரிக்க கடினமானதால், நாடி மூலம் நோயை சரியாக கணிக்கமுடியாது. ஏனவே நாடியை முதன்மையாக கொண்டு சிறுவர்களுக்கு நோயை நிதானிக்க முடியாததால், எண்வகை தேர்வுகளில் நீர்க்குறி, நெய்க்குறி, மலக்கூறி ஆய்வினை முதன்மையாக கொண்டு வாத, பித்த, கப உயிர்த்தாதுக்களை ஊகித்து அதன் அடிப்படையில் மtசுள் காமாலை நோயை கணித்து அதற்கான மருத்துவம் மேற்கொள்ளப்பட்டது.

ஆனால் பொதுவாக இந்நோயில் பித்த கப நாடியும், கப பித்த நாடியும் காணப்படலாம்.

SPARISM

In Manjal kamalai temperature was elevated at the time of onset. That is due to excessive pitham.

According to modern medical science. Fever was present during the onset of this disease due to viral infection. Palpable liver and tenderness was noted in Manjal kamalai.

NAA

In Manjal Kamalai excessive salivation was present with bitter taste. Tongue is yellow in colour. These are due to involvement of Pitham. These symptoms were noted in all patients.

NIRAM

In all the cases due to involvement of Pitham, the body was mildly yellow in colour.

MOZHI

Not affected in all 20 cases.

VIZHI

Vizhi was yellow in colour in all cases due to involvement of Pitham.

MALAM (stools)

In Manjal Kamalai, due to involvement of Pitham and Vatham, the malam was constipated. The stools was pale yellow in color.

MOOTHARAM (urine)

In all the cases the Moothiram was dark yellow in colour, due to the increased Pitham.

NEIKKURI

Among 20 cases, the neikkuri was just like the ring. It was defined that in the Pitha patient's urine will show ring shape. Hence this Manjal Kamalai is also a pitha type of disease it produced the ring shape.

In infective hepatitis, bile salts and bile pigments were present in all 20 cases. Urobilinogen was increased in all cases. In obstructive Jaundice there is absence of urobilinogen. Hence 20 cases were diagnosed as infective hepatitis. There are many liver function tests described in modern medicine. But they were not carried out due to lack of laboratory facilities.

UDAL VANMAI

In Manjal Kamalai, Iyarkai vanmai and Kaalavanmai are affected all patients.

CLASSIFICATION

IN BALAVAGADAM, Kamalai is classified into 3 types. Manjal Kamalai is one among the 3 types.

In Yugivaidya Chithamani Kamalai classified into 13 varieties, among 13 types, Manjal Kamalai is the commonly presented entity.

SIGNS AND SYMPTOMS OF MANJAL KAMALAI

- i) Loss of appetite.
- ii) Yellowish discoloration of the conjunctiva, sclera, urine under surface of tongue, buccal mucosa, and skin which are visible in natural daylight.
- iii) Constipation or Diarrhoea. Mental depression.
- iv) Body pain

Besides the common signs and symptoms of kamalai, the above mentioned signs and symptoms are noted in all 20 cases. Hence it was diagnosed as Manjal Kamalai

TREATMENT

In all 20 cases, mookirattai ver kudineer 30 ml (1-6 age group) and 60ml (7-12 age group) in every 4th hourly jeeraga chooranam. 1gm 3 times a day with hot water or butter milk.

“ விரேசனத்தால் வாதம் தாழும்
வமனத்தால் பித்தம் தாழும் - நசிய
அசனத்தால் கபம் தாழும்.

Regarding this Manjal Kamalai, among these vital forces, Pitham is affected first, and then the other vital forces are deranged. So the main principle in treatment aspects is to make the deranged Pitham to be in their normal places, and carry out normal functions by giving the medicines. Nausea and vomiting are among of the symptoms of Manjal Kamalai. So no need to give medicine for vomiting.

The trial medicine of Mookirattai ver kudineer and jeeraga chooranam having the tastes namely kaippu ;inippu and thubarpu and these are said to be useful in correcting the deranged pitham and kabam.

It is described in Kannusamiyam as follows.

“பித்த மதிகரிப்பின் பேசும் பரிகாரம்
சுத்தத் துவரோடு சொல்லிவிட்புச் சத்தாகும்
கைப்புச் சுவையே கருதுவதன் வீறு
எய்ப் புடையு மென்றுரைத் தாரிசு”

Mookirattai Ver kudineer is bitter is taste thubarpu),and jeeraga chooranam, inippu,and kaippu so it is very useful in pitha type of diseases.

The bio-chemical investigations have revealed the following facts. The trial medicine of Mookirattai ver kudineer contains tannic acid,starch, reducing sugar and unsaturated compound. But there is no minerals like calcium, phosphate, sulphate, chloride and Iron. I All the so patients were advised to take rice sugar cane juice and tender coconut water. Liver plays an important role in metabolism of carbohydrate, protein and fat. Excessive carbohydrate is convert into fat and glycogen. When liver function is affected the synthesis and storage of glycogen is not possible similarly in case of Jaundice the absorption of fat from the intestine is also affected.

Therefore, the body needs under these circumstances perennial supply of reducing sugar for its various metabolic activities. Brain can utilize only the glucose. Sugar can juice is mainly a disaccharide consisting of glucose and fructose. In the intestine the sugar is broken down into constituent by the enzyme invertase present in the surface of epithelium of microvili. It is easily digestend even in jaundice condition. Henc e the importance has been attached to the intake of sugar cane juice during the onset of Jaundice.

In the clinical side rice caunji with fat free boiled milk is the food to the patients who suffer from Manjal Kamalai.

When the medicine has been administered in the form of mookirattai ver Kudineer,and jeeragachooranam the patients responded very well. So the

medicine has given a good clinical cure. Nobody shows signs of complications like gastro-intestinal bleeding, encephalopathy and ascites.

Despite the common belief that an uncomplicated cases of viral hepatitis may recover even by complete rest with a prescribed diet regimen, the uniform recovery with remarkable clinical and bio-chemical improvement in above cases had helped to arrive at the view that jeeragachooranam and mookirattai ver kudineer possessing properties capable to normalizes Pitham with a particular hepato-protective effect.

SUMMARY AND CONCLUSION

Manjal kamalai a pitha type of disorder with considerable involvement of liver and gall bladder and wide constitutional features was taken for this study.

The clinical features of the manjal kamalai resembles the clinical entity of infective hepatitis, various literatures collected in siddha and modern side which are dealing the disease.

In this respect well known siddha medical literature's like bala vagadam, yugi chindamani, Agusthiyar-2000 Siddha maruthuvam, Noi Nadal part II and in modern science .

Text book of pediaticrics – Nelson, Essential pediaticrics- O.P Ghai, current paediatric diagnosis and treatment – lange's were availed for sources related to Manjal kamalai and its counter part of the infective hepatitis.

20 cases were admitted for study in the In-patient department. Among the patients 11 Males and 9 female.

The diagnosis of this disease were made on the basis of eight types of clinical investigations, and mukkuttram mentioned in siddha literature with concurrent practical application of modern clinical and laboratorial approach.

A traditional proprietary of siddha medicines tried in the form of chooranam and kudineer, which is prepared by dried plants of manjal karisalai, chukku, Jeeragam and sugar. And dried roots of mookirattai.

All the patients were responding well from the beginning with remarkable signs of improvement.

The important observation during this study has been shown that no patients were developed or reported any features of further complications like coma, Intestinal hemorrhage etc.

The occurrence of this disease was marked in kaar, Koothir and mudhuvani kalam.

All the patients were corresponded to report any untoward developments after their discharge.

The common belief of the public is that the siddha medicines and diet prescribed are more effective in the treatment of manjal kamalai is once again established by the clinical study.

The cost of the medicine used in the treatment of jaundice is very low, that is very cheap when compared with the cost of other medicines used in the treatment of jaundice. The plants, manjal karisalai and Jeeragam, Chukku, sugar and Mookirattai available and cultivated .

The adverse side effects are nil in the treatment of jaundice by the Siddha medicine.

GOVERNMENT SIDDHA MEDICAL COLLEGE
PALAYAMKOTTAI –THRUNELVELI – 627 002.
Br. IV KUZHANTHAI MARUTHUVAM POST GRADUATE
DISSERTATION STUDY ON “MANJAL KAMALAI”

| | | | |
|--------------|----------|-----------------------|----------|
| Ward | : | Place of birth | : |
| Ip.No | : | Religion | : |

| | | | |
|-------------------------|----------|--------------------------|----------|
| Bed.No | : | Nationality | : |
| Name | : | Admitted on time | : |
| Age | : | Discharge on time | : |
| Sex | : | Diagnosis | : |
| Father's Name | : | Medical Officer | : |
| Occupation | : | | |
| Income | : | | |
| Address | : | | |
| <u>Informant</u> | : | | |

Complaints and duration

History of present illness

History of previous illness

Birth History:

- 1. Antenatal history :**
- 2. Prenatal history :**
- 3. New natal history :**

Development history :

Nutritional history :

Immunization :

Family history :

Environmental and social history :

SIDDHA ASPECT

GENERAL CONDITION ON ADMISSION

GENERAL APPEARANCE

CONDITION OF 7 UDAL KATTUGAL:

- 1. Saram**
- 2. Sennear**

3. Oon
4. Kozhuppu
5. Enbu
6. Moolai
7. Sukkilam / Suronitham

ENNVAGAI THERVUGAL

1. Naa
2. Niram
3. Mozhi
4. Vizhi
5. Malam
6. Moothiram
7. Sparism
8. Nadi

MUKKUTTRANGAL

I. Vatham:

1. Piranan
2. Abanan
3. Viyanan
4. Udhanan
5. Samanan
6. Nagan
7. Koorman
8. Kirugaran
9. Devathathan
10. Dhananjeyan

I. PITHAM

1. Anilam
2. Ranjagam
3. Sathagam
4. Prasagam
5. Alosagam

II. KABAM

1. Avalambagam
2. Kilethagam
3. Pothagam
4. Tharpagam
5. Santhigam

KANMAENTHIRIYANGAL:

1. Kai
2. Kal
3. Vai
4. Eruvai
5. Karuvai

PORI PULANGAL:

1. Sound (Ear)
2. Light (Eye)
3. Sensation (Skin)
4. Taste (Tongue)
5. Smell (Nose)

GUNAM:

- 1.Sathuva Gunam
2. Raso Gunam
- 3.Thamo Gunam

MALANGAL

- 1.Malam
- 2.Moothiram
- 3.Viyarvai

NILANGAL

1. Kurinji
2. Mullai
3. Marutham
4. Neithal
5. Palai

PARUVA KALANGAL

1. Kaar
2. Koothir
3. Munpani
4. Pinpani
5. Illavenil
6. Mudhuvenil

Neer kuri

Nei Kuri

MODERN ASPECTS

GENERAL EXAMINATIONS:

Height:

Weight:

Head circumference

Mid arm circumference

General appearance

State of nutrition

Skin colour

Cyanosis
Jaundice
Pallor
Erythema
Lymphadenopathy
Clubbing
Pedal oedema

VITAL SIGNS:

Temperature
Pulse Rate
Respiratory Rate
Blood pressure
Chest
CVS
RS

SYSTEMIC EXAMINATION

1. Examination of the abdomen
 - a) Inspection: size, shape, distended veins, position of umbilicus
 - b) Palpation: Liver, Spleen, Gallbladder and tenderness.
 - c) Percussion: Fluid Frill, shifting dullness, stony dullness
 - d) Auscultation: Bruits or Bowel sounds

EXAMINATION OF OTHER SYSTEM:

SPECIAL INVESTIGATIONS

Total W.B.C Count:
Differential W.B.C count:
Erythrocyte sedimentation Rate:
Hemoglobin percentage
Total serum bilirubin
Direct :
Indirect:
Total serum protein
Australian Antigen (HBs Ag)

LIVER FUNCTION TEST

SGOT
SGPT

SAP

x- ray:

plain abdomen
USG: Abdomen

URINE:

Albumin
Sugar
Bile salts
Bile pigments
Urobilinogen

MOTION:

Color
Ova
Cyst
Occult blood

TREATMENT :

ADVICE

PROGRESS OF THE PATIENT:

**GOVERNMENT SIDDHA MEDICAL COLLEGE & HOSPITAL
PALAYAMKOTTAI –THRUNELVELI – 627 002.**

Br. IV KUZHANTHAI MARUTHUVAM

POST GRADUATE

DISCHARGE SHEET FOR “MANJAL KAMALAI”

| | | | |
|---------------------|---|---------|---|
| Name | : | Ward | : |
| Age / Sex | : | Ip.No | : |
| Occupation / Income | : | Bed. No | : |

| | | |
|----------------------------|------------------|------------------|
| Date of Admission | : | |
| Date of Discharge | : | |
| Diagnosis | : | |
| Signs and Symptoms | During Admission | During Discharge |
| Fever | | |
| Nausea | | |
| Vomiting | | |
| Loss of appetite | | |
| Yellow colored urine | | |
| Yellow colored conjunctiva | | |
| Pale colored motion | | |
| General weakness | | |
| Abdominal pain | | |
| Tender and palpable liver | | |
| Constipation | | |
| Anemia | | |
| Pruritus | | |
| Diarrhoea | | |

ANNEXURE – II

PREPARATION AND PROPERTIES OF TRIAL MEDICINE

Name of the trial medicine: “JEERAGA CHOORANAM”

| | | |
|--------------|------------------|----------|
| INGREDIENTS: | MANJAL KARISALAI | – 2 part |
| | Jeeragam | – 2 part |
| | Chukku | - 1 part |
| | Sugar | - 1 part |

PREPARATION OF THE TRIAL MEDICINE:

The raw drugs and manjal karisalai juice are dried and powdered well and Filtered is a cloth to get a fine powder and preserved in an air tight container.

DOSAGE:

1 – 2 gram

3 times a day, After food , 7 days.

Adjuvant : Butter milk, Hot water

Indication : Manjal kamalai

Duration : 3 months

Reference book : Gunapadam mooligai vaguppu

PROPERTIES OF THE INGREDIENTS

1.சீரகம்

Botanical Name : Cuminum Cyminum

Family : Apiaceae

Suvai : Inippu

Thanmai : Thatpatham

Pirivu : Inippu

Part used : Seeds

ACTIONS:

Carminative

Stimulant

Stomachic

Astringent

Antimicrobial

CONSTITUENTS:

Thymine – Essential oil

Cuminol } - Therphenes

Cymene

Aroma compound is cuminaldehyde (4 – isopropyl benzaldehyde) pyrazines, 2 – ethoxy-3 – isopropylpyrazine, 2 – methoxy – 3 – sec – butylpyrazine and 2 – methoxy -3- methyl purazine.

Hentria contanal, 14 – hepta consanol and stigmastorol Isolated from roots.

-Journal of Indian chemical society 1982,59,905.

Whole plant is tonic and deobstruent is hepatic and splenic enlargements and is emetic. Plant juice is combination with aromatics is administered for catarrh and Jaundice.

-Chopra et. At. 1956

-Indian material medica by

Dr. Nadkarni 1992,472.

General properties.

“பித்தமெனு மந்திரியைப் பின்னப் படுத்தியவன்
சுத்துருவை யுந்துரந்து சாதித்து – மத்தனெனும்
ராசனையு மீவென்று நண்மைப் பலப்படுத்த
போசனகு டாரிசெயும் போர்.”

-தேரன் வெண்பா

மேசுள் கிசாலை

| | | |
|----------------|---|----------------------|
| Botanical Name | : | Wedelia Calendulacea |
| Family | : | Compositae |
| Suvai | : | Kaippu |
| Thanmai | : | Veppam |
| Pirivu | : | Karppu |
| Part used | : | Whole plant |

ACTIONS:

Hepato tonic
Alternative
Hematinic
Diuretic
Cholagogue
Tonic
Febrifuse

CONSTITUENTS:

Reducing sugars in the alcoholic extract of leaves and whole plant.
Presence of sterols was confirmed in petroleum ether extract of seeds.
Wedelactone was obtained from the leaves and stem. The alcoholic solution of the crystals gave dark green colour with Ferric chloride. The crystals were soluble in warm pyridine.

Juice of the leaves of yellow flowered variety is administered in teaspoonful doses in jaundice and fever. Traditionally the plant is extensively used against jaundice.

The plant is also found to be effective in the treatment of infective hepatitis. And effective against liver injury and inflammation having anti hepatotoxic effect. The isolated constituents of this plant exhibited strong activity against liver damage induced by chemicals.

Wedelia has been largely used in the treatment of derangement of liver and gall bladder. The plant contained wedelolactone and desmethyl wedelolactone besides sulphur containing peptides.

The alcoholic extract of the entire plant has been reported to have an anti – viral – activity.

GENERAL PROPERTIES:

“குறற்கம்மல் காமாலை குட்டமொடு சோபை
யுற்ற பாண்டு பண்ணோ யொழியு - நிரற்சொன்ன
மெய்யாற் தகரையொத்த மீளி ண்ண நற்புலத்துக்
கையாந் தகரையொத்தக் கால்.”

- அகத்தியர் குணபாடம்.

சுக்கு

| | | |
|----------------|---|---------------------|
| Botanical Name | : | Zingiber officinale |
| Family | : | Zingiberaceal |
| Suvai | : | Karppu |
| Thanmai | : | Veppam |
| Pirivu | : | Karppu |
| Part used | | Rhizome |

ACTIONS:

Stimulant
Carminative
Dyspepsia and colic
Digestive
Appetizer
Rubifacient
Stomachic

CONSTITUENTS:

The characteristic odor and flavor of ginger root is caused by a mixture of zingerone, shoagols and gingerols. In laboratory animals the gingerols increase the motility of the gastro intestinal tract and have Analgesic, sedative. Anripyretic and antibacterial properties.

Ginger is may also decrease joint pain from arthritis and may have blood thinning and cholesterol lowering properties. And useful treating heart disease.

DIARRHOEA:

Zingerone is likely to be the active constituent against enterotoxigenic Escherichia coli heat – labile enterotoxin – Induced diarrhea.

Nausea:

Ginger has multiple studies for treating nausea.

GENERAL PROPERTIES

“சூலை மந்தம் நெQ;செரிப்பு தோடமேப் பம்மழலை
மூலம் இரைப்பிருமல் மூக்கு நீர் - வாலகப
தோடமதி சாரந் தொடர்வாத குன்மநீர்த்
தோடம்ஆ மம்போக்குQ; சுக்கு
- அகஸ்தியர் குணவாகடம்.

கரும்பு

Botanical Name : Saccharum officinarum
Family : Poaceae
Suvai : Inippu
Thanmai : Seetham
Pirivu : Inippu
Part used : Saccharum juice, Sugar

ACTIONS:

Antiseptic
Demulcent

CONSTITUENTS:

Sacharine, matter, water, mucilage, resin Fat, albumin and Vit C.

It is a good remedy in cough, hiccough, apthae and hoarseness and locally in granulations of the eyelids and cornea. It is chiefly used as a vehicle to disguise the taste of various nauseous medicines and chiefly of medicines given to children.

It is largely used as a preservative and antiseptic to protect active ingredient and certain iron preparations against oxidation and putrefaction but not against fermentation.

GENERAL PROPERTIES:

சீனி கருக்கரைக்குத் தீராத வன்சுரமுQ;
கூனிக்கும் வாதத்தின் கூட்டுறவும் - ஏனிற்கும்
வாந்தி யொடுகருமி மாறாத விக்கலுமே
போந்திசையை விட்டுப் புரண்டு.
- அகஸ்தியர் குணவாகடம்.
மூக்கிரட்டை வேர் குடிநீர்

மூக்கிரட்டை

BOTANICAL NAME : Boerhaavia Diffusa
Family : Nyctaginaceae
Common } Name : Pigweed
Trade }
Suvai : Kaippu
Thanmai : Veppam
Pirivu : Karppu

ACTIONS:

| Main actions | Other Actions | Standard Dosage | Decoction: |
|-----------------------|----------------------|-----------------|-----------------------|
| Protects liver | Detoxifies | Leaves, Root | 1 cup 1-3 times daily |
| Supports liver | Increases bile | | |
| Reduces inflammation | Cleanses blood | | |
| Relieves pain | Stops convulsions | | |
| Supports kidney | Kills bacteria | | |
| Increases urination | kills amebas | | |
| Stops' bleeding | kills viruses | | |
| Lowers blood pressure | Stimulates milk flow | | |

Mildly laxative

Brazil's leading medical herbalists reports Erva tostao is a plant medicine of great importance extra ordinarily beneficial in the treatment of liver disorders.

It is employed in Brazilian herbal medicine to stimulate the emptying of the gall bladder, as a diuretic for all types of liver disorders [Including jaundice and hepatitis] gallbladder pain and stones urinary tract disorders, renal disorders.

In Ayurvedic herbal medicine systems in India the roots are employed as a diuretic, Digestive laxative, internal inflammation of all kinds, oedema Jaundice, menstrual problems, anemia and liver, gallbladder and kidney disorders.

Throughout the tropics, Erva tostae is considered an excellent natural remedy for guinea worms.

The novel alkaloids found in Erva tostao have been documented with immune modulating effects.

In one study the alkaloid fraction of the root evidenced a dramatic effect in reducing an elevation cortisol levels under stressful conditions [cortisol is an inflammatory chemical produced in the body in an immune response].

Boerhaavic acid, Borhavine, heptadecyclic acid, histidine, punarnavine, sitosterols, stigmasterol are present.

Erva tostae has long been used in traditional medicine systems as a diuretic [To increase Urination] In Traditional preparation for a general liver tonic.

BIO-CHEMICAL ANALYSIS OF SEERAGA CHOORANAM

PREPARATION OF THE EXTRACT

5gms of SEERAGA CHOORANAM was weighed accurately and placed in a 250ml clean beaker. Then 50ml distilled water was added and dissolved well. Then it was boiled well for about 10 minutes. It is cooled and filtered in a 100ml volumetric flask and then it is made up to 100ml with distilled water. This fluid was taken for analysis.

QUALITATIVE ANALYSIS

| S.NO | EXPERIMENT | OBSERVATION | INFERENCE |
|------|------------|-------------|-----------|
|------|------------|-------------|-----------|

| | | | |
|----|--|----------------------------------|--|
| 1. | <u>TEST FOR CALCIUM</u> 2ml of the above prepared extract is taken in a clean test tube. 2 ml of 4% Ammonium oxalate solution is added to it | No white precipitate is formed | Absence of calcium |
| 2. | <u>TEST FOR SULPHATE:</u> 2ml of the extract is added to 5% barium chloride solution. | No white precipitate is formed | Absence of sulphate |
| 3. | <u>TEST FOR CHLORIDE</u> The extract is treated with silver nitrate solution. | A white precipitate is formed | Indicates the presence of chloride |
| 4. | <u>TEST FOR CARBONATE</u> The substance is treated with concentrated HCL. | No brisk effervescence is formed | Absence of carbonate |
| 5. | <u>TEST FOR STARCH</u> The extract is added with weak iodine solution. | Blue color is formed | Indicates the presence of starch |
| 6. | <u>TEST FOR IRON-FERRIC</u> The extract is treated with concentrated Glacial acetic acid and potassium Ferro cyanide. | No blue color is formed | Absence of ferric Iron. |
| 7. | <u>TEST OF IRON FERROUS:</u> The extract is treated with concentrated Nitric acid and ammonium thio cynaate. | Blood red color is formed | Indicates the presence of Ferrous Iron |

| S.NO | EXPERIMENT | OBSERVATION | INFERENCE |
|------|--|---------------------------------|----------------------|
| 8. | <u>TEST FOR PHOSPHATE</u> The extract is treated with ammonium Molybdate and concentrated nitric acid. | No yellow precipitate is formed | Absence of Phosphate |

| | | | |
|-----|---|-------------------------------------|--|
| 9. | <u>TEST FOR ALBUMIN</u> The extract is treated with Esbach's reagent. | No Yellow precipitate is formed | Absence of Albumin |
| 10. | <u>THST FOR UNSATURATION</u> Potassium permanganate solution is added to the extract. | No blue black precipitate is formed | Absence of Tannic acid |
| 11. | <u>TEST FOR THE REDUCING SUGUR</u> 5Ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mts and added 8-10 drops of the extract and again boil it for 2 mts. | It gets decolorized | Indicates the presence of unsaturated compound |
| 12. | <u>TEST FOR THE REDUCING SUGAR</u> 5 Ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mts and added 8-10 drops of the extract and again boil it for 2 mts. | No colors change Occurs | Absence of Reducing Sugar |
| 13. | <u>TEST FOR AMINO ACID:</u> One or two drips of the extract is placed on a filter paper and dried it well. After drying, 1% Ninhydrin is sprayed over the same and dried it well. | Violet colors is formed | Indicates the presence of Amino acid |

BIO-CHEMICAL ANALYSIS OF MOOKIRATTAI VER KUDINEER

PREPARATION OF THE EXTRACT

5gms of **MOOKIRATTAI VER KUDINEER** was weighed accurately and placed in a 250ml clean beaker. Then 50ml distilled water was added and dissolved well. Then it was boiled well for about 10 minutes. It is cooled and filtered in a 100ml volumetric flask and then it is made up to 100ml with distilled water. This fluid was taken for analysis.

QUALITATIVE ANALYSIS

| S.NO | EXPERIMENT | OBSERVATION | INFERENCE |
|------|--|----------------------------------|--|
| 1. | <u>TEST FOR CALCIUM</u> 2ml of the above prepared extract is taken in a clean test tube. 2 ml of 4% Ammonium oxalate solution is added to it | No white precipitate is formed | Absence of calcium |
| 2. | <u>TEST FOR SULPHATE:</u> 2ml of the extract is added to 5% barium chloride solution. | No white precipitate is formed | Indicates the presence of sulphate |
| 3. | <u>TEST FOR CHLORIDE</u> The extract is treated with silver nitrate solution. | A white precipitate is formed | Indicates the presence of chloride |
| 4. | <u>TEST FOR CARBONATE</u> The substance is treated with concentrated HCL. | No brisk effervescence is formed | Absence of carbonate |
| 5. | <u>TEST FOR STARCH</u> The extract is added with weak iodine solution. | Blue color is formed | Indicates the presence of starch |
| 6. | <u>TEST FOR IRON-FERRIC</u> The extract is treated with concentrated Glacial acetic acid and potassium Ferro cyanide. | No blue color is formed | Absence of ferric Iron. |
| 7. | <u>TEST OF IRON</u> <u>FERROUS:</u> The extract is treated with concentrated Nitric acid and ammonium thio cynaate. | Blood red color is formed | Indicates the presence of Ferrous Iron |

| S.NO | EXPERIMENT | OBSERVATION | INFERENCE |
|------|--|---------------------------------|----------------------|
| 8. | <u>TEST FOR PHOSPHATE</u> The extract is treated with ammonium Molybdate and concentrated nitric acid. | No yellow precipitate is formed | Absence of Phosphate |
| 9. | <u>TEST FOR ALBUMIN</u> | No Yellow precipitate is formed | Absence of Albumin |

| | | | |
|-----|---|-------------------------------------|--|
| | The extract is treated with Esbach's reagent. | | |
| 10. | <u>THST FOR UNSATURATION</u> Potassium permanganate solution is added to the extract. | No blue black precipitate is formed | Absence of Tannic acid |
| 11. | <u>TEST FOR THE REDUCING SUGUR</u> 5MI of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mts and added 8-10 drops of the extract and again boil it for 2 mts. | It gets decolorized | Indicates the presence of unsaturated compound |
| 12. | <u>TEST FOR THE REDUCING SUGAR</u> 5 MI of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mts and added 8-10 drops of the extract and again boil it for 2 mts. | No colors change Occurs | Absence of Reducing Sugar |
| 13. | <u>TEST FOR AMINO ACID:</u> One or two drips of the extract is placed on a filter paper and dried it well. After drying, 1% Ninhydrin is sprayed over the same and dried it well. | No Violet colors is formed | Absence of of Amino acid |

ANNEXURE – IV

PHARMACOLOGICAL ANALYSIS

HEPATO – PROTECTIVE STUDY OF JEERAGA CHOORANAM

AIM: To analyse the hepato-protective study of

1. JEERAGA CHOORANAM

Materials and Methods

Two groups of albino rats each consisting of 3 rats were used in this study. One group (A) of Albino rats received CCL4 0.2 ml/100mg body weight subcutaneously. The second group(B) received CCL4 0.2 ml /100 gm body weight with trial drug JEERAGA CHOORANAM for 8 days continuously.

On the ninth day the animals were sacrificed and liver lobes excised for histopathological studies.

HISTOPATHOLOGICAL STUDIES

1.In the CCL4 given group there was marked liver damage. Both the sample liver shows hepatocytes with lobular disarray. There is ballooning of the cytoplasm with plenty of fat vacuoles. In focal areas they coalesce to form fatty cysts. Few of the hepatocytes are completely replaced by fat vacuoles. Minimal fibrosis was seen extending from portal tract.

2.In group that received CCL4 and drug an over all protection from CCL4 damage was observed. Both the liver section shows normal hepatocytes arranged around central vein with mild dilatation. Sinuses appear dilated with prominent kupffer cells. Portal tracts appear expanded.

3.These two groups of liver section were compared to the normal histological appearance of the rat liver.

IMPRESSION

- 1.Group A:Moderate to severe fatty changes.
- 2.Group B: Non specific changes.

CONCLUSION:

The test drug have hepato-protective action against CCL4 induced liver damage.

ANTI – PYRETIC STUDY OF MOOKIRATTAI VER KUDINEER

AIM: To study anti-pyretic activity of Mookirattai ver kudineer.

PROCEDURE:

Group of six Albino rats were selected and divided equally in to 2 groups all the rats were made hyperthermic by subcutaneous injection of 12% suspension of

yeast at a dose of 1 ml/100 ml of body weight. 10 Hours later one group of animals was given the test drug by gastric tube to a dose of 20 mg/ml and the second group received only distilled water at a dose of 2 ml.

The mean rectal temperature for the two groups were recorded at 0 hr, 1 1/2 hrs. 3 hrs and 4 1/2 hrs after the drug administration. The difference between the mean temperature of the control group and that of the other group was measured.

STUDY OF ANTI PYRETIC BY YEAST INDUCED METHOD USING THE DRUGS OF MOOKIRATTAI VER KUDINEER

| S.No | Name of Drugs / groups | Dose / 100 gram body weight | Initial Temperature in centigrade | After Drug Administration | | | Remarks | |
|------|--------------------------|-----------------------------|-----------------------------------|---------------------------|--------------|--------------|---------|--|
| | | | | 1 ½ hour | 3 hours | 4 ½ hours | | |
| 1. | Control (Water) | 1 ml | 36.0 37.0 | 36.0 37.0 | 36.0 38.0 | 37.0 39.0 | 38.0 | |
| 2. | Standard (Paracetamol) | 20 mg | 37.0 38.0 | 37.0 37.0 | 36.5 36.5 | 35.0 34.0 | 34.5 | |
| 2. | Mookirattai ver Kudineer | 2ml | 37.0 36.0 | 37.0 36.0 | 36.5 35.5 | 36.0 35.0 | 35.5 | |

Significant Action

INFERENCE

Mookirattai ver kudineer has good anti – pyretic action.significant action.

STUDY OF ANTI PYRETIC BY YEAST INDUCED METHOD USING THE DRUGS OF JEERAGA CHOORANAM

| S.No | Name of Drugs / groups | Dose / 100 gram body weight | Initial Temperature in centigrade | After Drug Administration | | | Remarks | |
|------|------------------------|-----------------------------|-----------------------------------|---------------------------|--------------|--------------|---------|--|
| | | | | 1 ½ hour | 3.0 hours | 4 ½ hours | | |
| 1. | Control (Water) | 1 ml | 36.0 37.0 | 36.0 37.0 | 36.0 38.0 | 37.0 39.0 | 38.0 | |
| 2. | Standard (Paracetamol) | 20 mg | 37.0 38.0 | 37.0 37.0 | 36.5 36.5 | 35.0 34.0 | 34.5 | |
| 2. | Jeeraga chooranam | 100 mg | 36.0 36.0 | 36.0 36.0 | 35.5 35.5 | 35.0 35.0 | 35.0 | |

Significant Action

INFERENCE

JEERAGA CHOORANAM has good anti – pyretic action.significant action.

**ACUTE ANTI – INFLAMMATORY JEERAGA CHOORANAM &
MOOKIRATTAI VER KUDINEER
BY HIND-PAW METHOD IN ALBINO RATS**

AIM

To study the acute anti-inflammatory effect JEERAGA CHOORANAM & MOOKIRATTAI VER KUDINEER.

PREPARATION OF THE TEST DRUG

50gm of the test drug was dissolved in 250 ml of water, boiled and reduced in to 50 ml. A dose of 2 ml was given to each rat.

PROCEDURE:

Nine healthy albino rats weighing 100 – 150 gm were taken and divided into three groups, each consisting of 3 rats.

First group was kept as control by giving distilled water of 2ml/100 gm of body weight. The second group was given ibuprofen at dose of 20 mg /100 gm body weight. The third group received the test drug **JEERAGA CHOORANAM & MOOKIRATTAI VER KUDINEER** 2ml/100 gm body weight.

Before administration of test drug, the hind-paw volumes of all rats were measured. This was done by dipping the hind-paw(up to tibio-tarsal junction) in to a mercury plethyskography. While dipping the hind-paw, by pulling the syringe piston, the level of mercury in the centre small tube was made to coincide with red marking and reading was noted from the plethysmograph.

Soon after measurement, the drugs were administered orally. One hour later, a sub-cutaneous injection of 0.1 ml of 1% (W/V) carrageenin in water was made into planter surface of both hind-paw of each rat. Three hours after carrageenin injection, the hind-paw volumes were measured once again. The difference between in the initial and final volume was calculated and compared.

The method is more suitable for studying the anti-inflammatory activity in acute inflammation. The values are given in the table.

STUDY OF ACUTE ANTI-INFLAMMATORY BY HIND PAW METHOD USING PLETHYSMOGRAPH USING THE DRUG ON MOOKIRATTAI VER KUDINEER

| S.No | Name of Drug /groups | Dose/100 Gram body weight | Initial Reading average | Final Reading Average | Mean Difference | Percentage Inflammation | Percentage Inhibition | Remarks |
|------|----------------------|---------------------------|-------------------------|-----------------------|-----------------|-------------------------|-----------------------|---------|
|------|----------------------|---------------------------|-------------------------|-----------------------|-----------------|-------------------------|-----------------------|---------|

| | | | | | | | | |
|----|-------------------------|------|------|------|------|------|------|--|
| | | | | e | | | | |
| 1. | Control(water) | 2ml | 0.55 | 1.4 | 0.85 | 100 | - | |
| 2. | Standard (IbuBrufen) | 20mg | 0.55 | 0.85 | 0.3 | 35.2 | 64.8 | |
| 3. | Mookrattai ver Kudineer | 2ml | 0.7 | 1.0 | 0.3 | 35.2 | 64.8 | |

Significant Action

**STUDY OF ACUTE ANTI-INFLAMMATORY BY HIND PAW METHOD
USING PLETHYSMOGRAPH USING THE DRUG ON
JEERAGA CHOORANAM**

| S.No | Name of Drug /groups | Dose/100 Gram body weight | Initial Reading average | Final Reading Average | Mean Difference | Percentage Inflammation | Percentage Inhibition | Remarks |
|------|-------------------------|---------------------------|-------------------------|-----------------------|-----------------|-------------------------|-----------------------|---------|
| 1. | Control(water) | 2ml | 0.55 | 1.4 | 0.85 | 100 | - | |
| 2. | Standard (IbuBrufen) | 20mg | 0.55 | 0.85 | 0.3 | 35.2 | 64.8 | |
| 3. | Mookrattai ver Kudineer | 100Mg | 0.6 | 0.9 | 0.3 | 35.2 | 64.8 | |

Significant Action

**STUDY OF CHRONIC ANIT-INFLAMMATORY EFFECT BY COTTON
PELLET METHOD USING THE DRUGS OF
JEERAGA CHOORANAM**

CONCLUSION

The test drug has significant action in acute anti-inflammatory action.

Significant Action

| S.No | Name of Drugs/ Group | Dose/100 gm body weight | Pellet Weight | Pellet Weight of the Granuloma of drugs | Percentage of inflammation | Percentage of inhibition | Remarks |
|------|-------------------------|----------------------------|------------------|---|----------------------------------|-----------------------------|---------|
| 1. | Control(water) | 1ml | 10mg | 250mg | 100 | - | |
| 2. | Standard (IbuBrufen) | 20mg | 10mg | 55 mg | 22 | 78 | |
| 3. | Jeeraga Chooranam | 100mg | 10mg | 100 mg | 40 | 60 | |

STUDY OF CHRONIC ANTI-INFLAMMATORY EFFECT BY COTTON PELLET METHOD USING THE DRUGS OF MOOKIRATTAI VER KUDINEER

| S.No | Name of Drugs/ Group | Dose/100 gm body weight | Pellet Weight | Pellet Weight of the Granuloma of drugs | Percentage of inflammation | Percentage of inhibition | Remarks |
|------|----------------------------|----------------------------|------------------|---|----------------------------------|-----------------------------|---------|
| 1. | Control(water) | 1 ml | 10mg | 250mg | 100 | - | |
| 2. | Standard (IbuBrufen) | 20mg | 10mg | 55 mg | 22 | 78 | |
| 3. | Mookrattai ver Kudineer | 100mg | 10mg | 125 mg | 50 | 50 | |

Significant Action

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